The 1998 Fishwheel Project on the Nass River, BC

R. F. Alexander and M. R. Link

Fisheries and Oceans Canada
Science Branch, Pacific Region
Room 202 – 417 2nd Street
Prince Rupert, British Columbia
V8J 1G8

2001

Canadian Manuscript Report of Fisheries and Aquatic Sciences 2556

Fisheries and Oceans Canada
Science

Pêches et Océans Canada
Sciences

Canada

Canadian Manuscript Report of Fisheries and Aquatic Sciences

Manuscript reports contain scientific and technical information that contributes to existing knowledge but which deals with national or regional problems. Distribution is restricted to institutions or individuals located in particular regions of Canada. However, no restriction is placed on subject matter, and the series reflects the broad interests and policies of the Department of Fisheries and Oceans, namely, fisheries and aquatic sciences.

Manuscript reports may be cited as full publications. The correct citation appears above the abstract of each report. Each report is abstracted in *Aquatic Sciences and Fisheries Abstracts* and indexed in the Department's annual index to scientific and technical publications.

Numbers 1-900 in this series were issued as Manuscript Reports (Biological Series) of the Biological Board of Canada, and subsequent to 1937 when the name of the Board was changed by Act of Parliament, as Manuscript Reports (Biological Series) of the Fisheries Research Board of Canada. Numbers 1426 - 1550 were issued as Department of Fisheries and the Environment, Fisheries and Marine Service Manuscript Reports. The current series name was changed with report number 1551.

Manuscript reports are produced regionally but are numbered nationally. Requests for individual reports will be filled by the issuing establishment listed on the front cover and title page. Out-of-stock reports will be supplied for a fee by commercial agents.

Rapport manuscrit canadien des sciences halieutiques et aquatiques

Les rapports manuscrits contiennent des renseignements scientifiques et techniques ques qui constituent une contribution aux connaissances actuelles, mais qui traitent de problèmes nationaux ou régionaux. La distribution en est limitée aux organismes et aux personnes de régions particulières du Canada. Il n'y a aucune restriction quant au sujet; de fait, la série reflète la vaste gamme des intérêts et des politiques du ministère des Pêches et des Océans, c'est-à-dire les sciences halieutiques et aquatiques.

Les rapports manuscrits peuvent être cités comme des publications complètes. Le titre exact paraît au-dessus du résumé de chaque rapport. Les rapports manuscrits sont résumés dans la revue *Résumés des sciences aquatiques et halieutiques*, et ils sont classés dans l'index annual des publications scientifiques et techniques du Ministère.

Les numéros 1 à 900 de cette série ont été publiés à titre de manuscrits (série biologique) de l'Office de biologie du Canada, et après le changement de la désignation de cet organisme par décret du Parlement, en 1937, ont été classés comme manuscrits (série biologique) de l'Office des recherches sur les pêcheries du Canada. Les numéros 901 à 1425 ont été publiés à titre de rapports manuscrits de l'Office des recherches sur les pêcheries du Canada. Les numéros 1426 à 1550 sont parus à titre de rapports manuscrits du Service des pêches et de la mer, ministère des Pêches et de l'Environnement. Le nom actuel de la série a été établi lors de la parution du numéro 1551.

Les rapports manuscrits sont produits a l'échelon régional, mais numérotés à l'échelon national. Les demandes de rapports seront satisfaites par l'établissement auteur dont le nom figure sur la couverture et la page du titre. Les rapports épuisés seront fournis contre rétribution par des agents commerciaux.

101-02826/

Canadian Manuscript Report of

Fisheries and Aquatic Sciences 2556

2001

THE 1998 FISHWHEEL PROJECT ON THE NASS RIVER, BC

prepared by

Richard F. Alexander and Michael R. Link

LGL Limited
environmental research associates[1]

for the

Nisga'a Tribal Council[2]

---

[1] 9768 Second St., Sidney, BC V8L 3Y8
[2] P.O. Box 231 New Aiyansh, BC V0J 1A0

© Minster of Supply and Services Canada 2000
Cat. No. Fs 97-4/2556E ISSN 0706-6473

Correct Citation for this publication:

Alexander, R.F. and M.R. Link. 2001. The 1998 fishwheel project on the Nass River, BC. Can. Manuscr. Rep. Fish. Aquat. Sci. 2556: xi + 110 p.

TABLE OF CONTENTS

LIST OF TABLES v

LIST OF FIGURES vi

LIST OF APPENDICES viii

ABSTRACT x

RÉSUMÉ xi

INTRODUCTION 1

Study Area 1

METHODS 1

Fishwheel Operation 1
Fishwheel Effort and Catch 2
Tagging 2
Tag Recovery 3
Escapement Estimates 4
In-season Escapement Estimates 4
Post-season Escapement Estimates 4
Run Reconstruction 5
Age and Length Sampling 5
Genetic Stock Identification 5

RESULTS 6

Fishwheel Operation 6
Fishwheel Effort 6
Catches and Catch Per Unit Effort 6
Tagging 8
Tag Recovery 8
Escapement Estimates 10
In-season Escapement Estimates 10
Post-season Escapement Estimates 10
Run Reconstruction 11
Age and Length Sampling 11
Genetic Stock Identification 12

DISCUSSION 12

Operational Evaluation 12
Escapement Estimates 12
Summary of Final Escapement Estimates 14
Fishwheels as a Test Fishery 14

ACKNOWLEDGMENTS 15

REFERENCES 16

TABLES 18

FIGURES 30

APPENDIX A 48

APPENDIX B 54

APPENDIX C 84

APPENDIX D 91

APPENDIX E 104

LIST OF TABLES

Table 1. Numbers of each species of salmon caught and tagged at four fishwheels on the Nass River, 1998 19

Table 2. A summary of the number of tag recoveries by location for the tags applied at the Nass River fishwheels, 1998 20

Table 3. Population estimates derived from tagging of adult sockeye and coho salmon at the Nass River fishwheels and recovery of tags at the Meziadin fishway, 1998 21

Table 4. Summary of escapement survey data and estimated escapement for chinook salmon upstream of Grease Harbour, 1998 22

Table 5. The estimated percentages of adult chinook, sockeye, and coho captured with four fishwheels on the Nass River, 1998 23

Table 6. Means, standard errors and 95% confidence intervals for sockeye travel times from the fishwheels to the Meziadin fishway for 3-day release periods, 1998 24

Table 7. Summary of age composition of chinook, sockeye, and coho salmon sampled at the Nass River fishwheels, 1998 25

Table 8. Mean nose-fork length (cm) of salmon (by age) sampled at the Nass River fishwheels, 1998 26

Table 9. The estimated annual catch rates (% of the run captured) of the Nass River fishwheels for chinook, sockeye and coho salmon, 1992-98 27

Table 10. Summary of the estimates of catch and escapement to the Nass River for chinook, sockeye, and coho salmon, 1998 28

Table 11. Comparison of stock composition estimates for Nass River sockeye salmon (percent Meziadin) from scale, genetic and tagging methods, 1986-98 29

LIST OF FIGURES

Figure 1. The Nass watershed showing locations of the fishwheels, the Meziadin fishway and chinook spawning areas that were surveyed....31

Figure 2. Fishwheel effort (hours) and speed (RPM) for four fishwheels on the Nass River, 1998....32

Figure 3. Fishwheel CPUE (catch per wheel hour) for adult chinook salmon captured with four fishwheels on the Nass River, 1998....33

Figure 4. Fishwheel CPUE (catch per wheel hour) for adult sockeye salmon captured with four fishwheels on the Nass River, 1998....34

Figure 5. Fishwheel CPUE (catch per wheel hour) for adult coho salmon captured with four fishwheels on the Nass River, 1998....35

Figure 6. Fishwheel CPUE (catch per wheel hour) for adult steelhead captured with four fishwheels on the Nass River, 1998....36

Figure 7. Fishwheel CPUE (catch per wheel hour) for adult pink salmon captured with four fishwheels on the Nass River, 1998....37

Figure 8. Fishwheel CPUE (catch per wheel hour) for adult chum salmon captured with four fishwheels on the Nass River, 1998....38

Figure 9. Time between release and recapture for chinook salmon tagged at fishwheels 1 and 2 and subsequently recaptured in each of the four fishwheels, 1998....39

Figure 10. Time between release and recapture for sockeye salmon tagged at fishwheels 1 and 2 and subsequently recaptured in each of the four fishwheels, 1998....40

Figure 11. Daily counts and percent of fish with tags for sockeye and coho salmon passing through the Meziadin fishway, 1998....41

Figure 12. a) The distribution of travel times (days) to the Meziadin fishway for sockeye salmon tagged at the Nass River fishwheels and recovered at the Meziadin fishway, 1998; b) Mean travel time (with 95% confidence intervals) for 3-day release periods....42

Figure 13. Percent of the sockeye salmon run captured by fishwheels 1 and 2 versus estimated daily escapement, 1998....43

LIST OF FIGURES - Cont'd

Figure 14. Percent of the sockeye salmon run captured by fishwheels 1 and 2 versus level of the Nass River at Gitwinksihlkw, 1998 44

Figure 15. Weekly age composition of successfully aged sockeye salmon sampled from the Nass River fishwheel catch, 1998 45

Figure 16. Age-length frequencies for chinook and coho salmon (by age) sampled at the Nass River fishwheels, 1998 46

Figure 17. Age-length distributions for sockeye salmon sampled at the Nass River fishwheels, 1998 47

LIST OF APPENDICES

Appendix A. Water temperature/level data and fishwheel effort, 1998 48

Table A-1. Minimum and maximum water level and temperature data collected in the Nass River near Gitwinksihlkw, 12 June to 12 October 1998 49

Table A-2. Summary of daily fishwheel effort (hours), effort used to calculate CPUE and fishwheel speed (RPM) for four fishwheels operated on the Nass River, 1998 50

Figure A-1. Daily maximum water temperature and level in the Nass River near Gitwinksihlkw, 1998 53

Appendix B. Daily catches at the Nass River fishwheels, 1998 54

Table B-1. Daily catches, numbers of fish tagged, and CPUE (adult catch per hour) for chinook salmon captured in the Nass River fishwheels, 1998 55

Table B-2. Daily catches, numbers of fish tagged, and CPUE (adult catch per hour) for sockeye salmon captured in the Nass River fishwheels, 1998 58

Table B-3. Daily catches, numbers of fish tagged, and CPUE (adult catch per hour) for coho salmon captured in the Nass River fishwheels, 1998 62

Table B-4. Daily catches, numbers of fish tagged, and CPUE (adult catch per hour) for steelhead captured in the Nass River fishwheels, 1998 65

Table B-5. Daily catches of pink and chum salmon at the Nass River fishwheels, 1998 69

Table B-6. Catches of other salmonids captured in the Nass River fishwheels, 1998 73

Table B-7. Catches of non-salmonids captured in the Nass River fishwheels, 1998 76

Table B-8. Daily catches of Pacific salmon smolts captured in the Nass River fishwheels, 1998 80

Appendix C. Summaries of recovery data for fish tagged at the Nass River fishwheels, 1998 84

Table C-1. Summary statistics of travel time data for chinook, sockeye, and coho salmon tagged at the Nass River fishwheels, 1998 85

LIST OF APPENDICES – Cont'd

Table C-2. Travel time information for recoveries of tagged chinook salmon by location tagged and location recovered, 1998 86

Table C-3. Travel time information for recoveries of tagged sockeye salmon by location tagged and location recovered, 1998 87

Table C-4. Travel time information for recoveries of tagged coho salmon by location tagged and location recovered, 1998 89

Appendix D. Daily counts of salmon at the Meziadin fishway and in-season sockeye escapement estimates, 1998 91

Table D-1. Daily counts of sockeye salmon through the Meziadin fishway, 28 June to 22 October 1998 92

Table D-2. Daily counts of chinook, coho, steelhead and pink salmon through the Meziadin fishway, 28 June to 22 October 1998 96

Table D-3. The data used to derive the in-season sockeye salmon escapement estimates for the Nass River, 1998 100

Appendix E: Age and length data from fish captured in the Nass River fishwheels, 1998 104

Table E-1. Numbers of fish by age and length for chinook salmon sampled at the Nass River fishwheels, 1998 105

Table E-2. Numbers of fish by age and length for sockeye salmon sampled at the Nass River fishwheels, 1998 107

Table E-3. Summary of weekly age composition of sockeye salmon sampled at the Nass River fishwheels, 1998 108

Table E-4. Summary of the numbers and mean lengths (nose-fork, cm) of successfully aged sockeye salmon from the Nass River fishwheel catch, 1998 109

Table E-5. Numbers of fish by age and length for coho salmon sampled at the Nass River fishwheels, 1998 110

ABSTRACT

Alexander, R.F. and M.R. Link. 2001. The 1998 fishwheel project on the Nass River, BC. Can. Manuscr. Rep. Fish. Aquat. Sci. 2556: xi + 110 p.

Four fishwheels were operated on the lower Nass River from 12 June to 13 October 1998. The fishwheels operated for a total of 9,874 h and captured 38,155 salmon. Catches of adult salmon included 19,176 sockeye, 10,624 pink, 3,869 coho, 3,507 chinook, 707 steelhead, and 272 chum. Of these, 4,030 sockeye, 2,766 coho, 1,606 chinook salmon, and 635 steelhead were tagged. Totals of 388 chinook, 1,752 sockeye and 1,148 coho salmon from the catch were successfully aged using scales. A total of 3,297 tagged fish were later recovered in fisheries and on tributaries of the Nass River. Counts of marked and unmarked fish from the Meziadin fishway and in-river harvests were used to compute net escapement estimates for sockeye (266,458) and coho salmon (42,320). The coho estimate represented only a portion of the total coho escapement because the fishwheels did not operate through the entire coho run and recovery efforts were confined to an early run stock (Meziadin River). The net chinook escapement (23,213) was derived by a mark-recapture estimate (spawning ground surveys) minus estimated in-river harvests. The four fishwheels combined caught an estimated 12.6% of the chinook run, 8.9% of the coho run, and 6.2% of the sockeye run. Including subsequent in-river harvests, an estimated 32,548 chinook and 304,888 sockeye salmon entered the Nass River in 1998. Daily tag release (at the fishwheels) and recovery data (at the Meziadin fishway) were used to reconstruct the sockeye abundance in the lower river and assess the within season variation in the portion of the sockeye run caught by the fishwheels.

RÉSUMÉ

Alexander, R.F. and M.R. Link. 2001. The 1998 fishwheel project on the Nass River, BC. Can. Manuscr. Rep. Fish. Aquat. Sci. 2556: xi + 110 p.

Quatre filets rotatifs furent en opération sur la section inférieure de la rivière Nass pour un total de 9,874 heures et ont capturé 38,155 saumon entre le 12 juin et le 13 octobre 1998. Des saumon adultes capturés nous comptons 19,176 saumon rouge, 10,624 saumon rose, 3,869 saumon coho, 3,507 saumon quinnat, 707 truites arc-en-ciel anadromes et 272 saumon kéta. De ceux-ci 4,030 saumon rouge, 2,766 saumon coho, 1,606 saumon quinnat et 635 truites arc-en-ciel anadromes étaient marqués. Nous avons réussi à déterminer l'âge de 388 saumon quinnat, 1,752 saumon rouge et 1,148 saumon coho en nous servant des écailles. 3,297 poissons marqués furent récupérés durant les ouvertures de pêches et dans les tributaires de la rivière Nass. Nous nous sommes basés sur le compte de poissons marqués et non marqués de la passe migratoire Meziadin et de poissons capturés dans la rivière pour calculer l'estimation de l'échappée nette pour le saumon rouge (266,458) et le saumon coho (42,320). L'estimation du saumon coho ne représentait qu'une portion de l'échapppée totale car les filets rotatifs n'étaient pas en opération durant toute la remontée du saumon coho et les efforts de récupération ont été limités au début de la remontée (Rivière Meziadin). L'échappée nette de saumon quinnat (23,213) fut dérivée de l'estimation de la récupération marquée (recherches de la frayère) moins l'estimation de la récolte dans la rivière. Les 4 filets rotatifs ont capturé approximativement 12.6% de la remontée du saumon quinnat, 8.9% de la remontée du saumon coho et 6.2% de la remontée du saumon rouge. Y compris les récoltes subséquentes dans la rivière, une estimation de 32,548 saumon quinnat et 304,888 saumon rouge sont entrés dans la rivière Nass en 1998. Nous nous sommes servis de la remise à l'eau journalière des poissons étiquetés (aux filets rotatifs) et des données de récupération (à la passe migratoire Meziadin) pour reconstruire l'abondance du saumon rouge dans la section inférieure de la rivière et afin de déterminer les variations qui prennent place durant la saison dans la portion de la remontée du saumon rouge capturé par les filets rotatifs.

INTRODUCTION

This report documents the results of the seventh consecutive year of a fishwheel project on the Nass River (Link et al. 1996; Link and English 1996, 1997; Link and Gurak 1997, Link 1999; Link et al. 2000a; hereafter referred to as "Annual Reports"). The report documents methods, fishwheel catches and effort, tagging and mark-recapture data, population estimates, and biological and age information obtained from the 1998 season.

The objectives of the 1998 Nass River fishwheel project were to:

1. use the fishwheels to capture, tag, and recapture sockeye salmon (*Oncorhynchus nerka*) for use in estimating the in-season escapement of Nass sockeye salmon;

2. use the fishwheels to conduct a harvest of sockeye if an escapement surplus to spawning requirements (ESSR) fishery has been approved by Fisheries and Oceans Canada (no ESSR fishery was approved in 1998).

3. generate post-season estimates of the escapement of chinook (*O. tshawytscha*), sockeye, coho (*O. kisutch*), and steelhead (*O. mykiss*) returning to the Nass River and document the migration timing of each species; and

4. collect and summarize biological information from fish captured in the fishwheels.

The steelhead escapement estimates have been summarized in Link et al. (2000b).

Study Area

The Nass River drains 20,500 km^2, has an average annual discharge of 813 m^3s^{-1} and ranges from 24 m^3s^{-1} to 5437 m^3s^{-1} within years (Holland 1976). The river originates in the Skeena Mountains and flows south and south-west for approximately 400 km, entering the Pacific Ocean at Portland Inlet on the north coast of British Columbia (Fig. 1).

METHODS

Fishwheel Operation

Four fishwheels (Meehan 1961; Donaldson and Cramer 1971) similar to those described by Link and English (1996) were operated on the Nass River from 1992-98. Two fishwheels were operated near the village of Gitwinksihlkw (approximately 46 river km from sea) and two were operated 17-20 km upstream of Gitwinksihlkw near Grease Harbour (Fig. 1 and Appendix A). The design of the fishwheel used on the Nass has changed significantly since 1992. Link and English (1996) document the shift in 1993 from a "Taku River" two-basket wooden fishwheel design to a three-basket design that was largely based on photographs of fishwheels used on the Columbia River about 100 years ago (Donaldson and Cramer 1971). Since 1993,

there has been a gradual transition from wood to aluminium as the building material for the fishwheels (documented in the Annual Reports). Virtually all of the fishwheel components were made of aluminium by 1997.

The nylon netting which lines the fishwheel baskets has varied across the years. From 1992 until 1995, all fishwheels were fitted with 9.8 cm or $3^{7}/_{8}$" *13x16* knotted salmon seine net. In 1996, fishwheels 2 and 4 were fitted with a smaller 3.8 cm mesh (1½ " stretched, knotless nylon mesh, BL 210-60). In 1997 and 1998, all four of the Nass River fishwheels were fitted with the smaller 3.8 cm mesh.

Daily maximum and minimum water temperatures (°C) and levels (m) at Gitwinksihlkw were recorded using an electronic data logger[3].

In this report, any reference to the Gitwinksihlkw fishwheels refers to fishwheel 1 and fishwheel 2 and any reference to the Grease Harbour fishwheels refers to fishwheel 3 and fishwheel 4.

Fishwheel Effort and Catch

Daily fishing effort of the fishwheels was measured in two ways. First, total effort was measured as the total time each fishwheel was fishing from midnight to midnight each day. This effort value gave an indication of the amount of down time (non-operational time) associated with each date. Second, the effort used to calculate catch per unit effort (CPUE, fish per hour) was measured as the number of hours fishing that went into obtaining each day's catch. These two effort values were different on most days because the time of the last sampling session on each day varied; this affected how much effort went into a given day's catch. For example, if the last sampling session on day *t* finished at 2200 h, and on day *t+1* the last sampling session ended at 2000 h (all fish were removed after each session and the fishwheel fished continuously through day *t* and *t+1*), only 22 h of fishing effort went into obtaining the catch on day *t+1*, whereas the total effort for day *t+1* would be 24 hours as there was no "down time". The fishing effort on day *t+1* could also exceed 24 h if the last sampling session on day *t* was earlier than the last sampling session on day *t+1*.

The speed of each fishwheel was determined each day by measuring the time required for the fishwheel to complete three revolutions. This value was converted to revolutions per minute (RPM). The arithmetic mean of the measurements was used when the fishwheel speed was measured more than once in a day.

Tagging

As in previous years, spaghetti tags and operculum tags were used for marking fish from the fishwheels and were used later for the mark-recapture population estimates. Numbered

---

[3] Unidata America, Lake Oswego, OR, USA

spaghetti tags (Floy Model FT-4)[4] were applied to sockeye (yellow) and coho (red), numbered operculum tags (Ketchum kurl-lock tag, No. 3)[5] to chinook and numbered orange or white anchor "T-bar" tags (Floy FD-68B) were applied to steelhead. The spaghetti and anchor tags were applied through the dorsal musculature near the posterior end of the dorsal fin. The operculum tags were attached to the left opercle plate of chinook salmon. Pacific lamprey were marked with a single-hole paper punch by placing a 6 mm diameter hole in the dorsal area of the caudal fin (fish caught in fishwheels 1 and 2) and through the dorsal fin (fish caught in fishwheels 3 and 4). The handling and tagging procedures for salmon used in 1998 were the same as those used in previous years (Link et al. 1996).

Tag Recovery

Fish tagged at the fishwheels were recovered throughout the Nass River watershed using a variety of techniques. The majority of tagged sockeye and coho salmon were counted and/or recovered at the Meziadin fishway (150 river km upstream of the fishwheels; Haugan et al. 1989; Fig. 1). Tagged chinook salmon were recovered primarily during the spawning grounds surveys. Recoveries of tagged salmon were also obtained from the fishwheels (released back to the river live) and in-river net and sport fisheries.

A reward program was implemented in 1998 to encourage fishers to return any tagged fish captured during in-river fisheries. Each returned tag gave the returnee one chance in each of three separate draws of $250. Posters were distributed around the Nass Valley describing the reward program and catch monitoring interviewers encouraged fishers to return any tags that were captured during fishing activities. The information obtained from the tag recovery program was used to assess the relative participation rate of fishers returning tags from in-river fisheries and estimating tag removal rates.

The field crew working at the Meziadin fishway counted every tagged fish that passed through the fishway, and captured and recorded numbers from as many fish as possible, without excessively delaying the migration of fish. Diverting tagged fish into a pen adjacent to the counting chute captured a portion of each day's tagged fish. The fish were then dipnetted out of the holding pen, the portion of the tag containing the tag number was cut off with scissors and the fish was released upstream of the fishway. With their tags clipped, the crew would know if a tagged fish had dropped back below the falls and re-ascended the fishway. The clipped tag was immediately obvious in the counting chute and a complete count of tagged fish using the fishway more than once could be obtained.

---

[4] Floy Tag and Manufacturing Co. Inc., 4616 Union Place N.E., Seattle, WA 98105 USA

[5] Ketchum Manufacturing Sales Ltd., 396 Berkley Ave., Ottawa, Ont., K2A 2G6, Canada

Escapement Estimates

In-season Escapement Estimates

In-season population estimates for sockeye salmon were derived using two methods. The first method provided escapement estimates using pre-season estimates of the combined catchability coefficient for the Gitwinksihlkw fishwheels. As in 1997, period-specific catchability estimates were used in 1998. This was done to account for apparent within season changes in catch rates of the fishwheels. These factor-based escapement estimates were used in June and were based on estimated catch rates of the Gitwinksihlkw fishwheels from 1994 to 1997. The second method used tag recovery data from the Grease Harbour fishwheels once sufficient numbers of tagged and untagged sockeye were recovered to derive a reliable mark-recapture estimate (Link and English 1996). In 1998, the mark-recapture estimate was considered the better of the two estimates by 27 June.

Post-season Escapement Estimates

Post-season population estimates were calculated for sockeye, coho, and chinook salmon using the tag recovery information from the Meziadin fishway and spawning ground surveys. These data were pooled to include fish tagged and examined over the entire run. The post-season escapement estimates were made using the adjusted Petersen formula (Ricker 1975). For the sockeye and coho estimates, the fish examined at the Meziadin fishway were used as the recapture sample (C in the Petersen formula; Ricker 1975). For chinook salmon, live counts (Meziadin fishway) and dead fish from the spawning ground surveys were pooled and used as the recapture sample to generate a population estimate above Grease Harbour. Confidence limits for the mark-recapture estimates were determined using Pearson's formulae (Appendix II of Ricker 1975).

For the sockeye estimate, the number of tags applied at Gitwinksihlkw was adjusted to account for a 20% selective tag removal rate from in-river fisheries and mortalities above the tagging sites (based on recommendations by Link and Gurak (1997)).

For the coho estimate, the number of tags applied at the Nass fishwheels was adjusted downward to account for availability of tags to be recovered at Meziadin fishway. Availability of tag recovery was based on the mean travel time of tagged fish to reach the fishway in 1998 and the last date of operations at the fishway. The number of tags were also adjusted to account for a 10% selective tag removal rate from in-river fisheries and mortalities above the tagging sites (based on recommendations by Link and Gurak (1997)).

For the chinook estimate, the tags that were applied at the four fishwheels were adjusted (censored) to account for tag loss associated with mortality (5%) and selective removal within fisheries (assuming 50% compliance of tags recovered by fishers as suggested in Link and Nass (1999).

Run Reconstruction

Daily sockeye salmon abundance at the fishwheel site were reconstructed using tag recovery data from the fishway (Link and English 1996) and these were compared to fishwheel catches to examine the variation in the estimated portion of the run the fishwheels caught through time. This was done to assess the suitability of the fishwheels as an in-season index of the sockeye salmon escapement to the lower river. The run reconstruction was possible because daily catch and tag totals from the fishwheels and the Meziadin fishway were known, as were the travel times for the tagged fish recovered at the fishway.

Age and Length Sampling

A portion of each day's catch in the Gitwinksihlkw fishwheels was sampled for scales, length and sex. Both fixed-size sampling and proportional sampling was done in 1998. Up to 20 chinook per day were sampled for scales and nearly all tagged chinook were measured; for sockeye, approximately 10% of the catch was sampled (scales and length). Up to 25 coho salmon per day were sampled for scales and nearly all tagged coho were measured. Nearly all steelhead captured in all four fishwheels were sampled for scales, length, and sex. The nose-fork length was measured (to the nearest cm) using a fabric measuring tape affixed to the inside of the tagging tray. Jacks were defined as chinook salmon less than 50 cm, sockeye salmon less than 45 cm and coho salmon less than 40 cm. Two scales were taken from the preferred area for sockeye and coho, and five scales were collected from chinook and steelhead. Scales were mounted on numbered, gummed scale cards. Excluding the steelhead samples, scale samples were sent to the Department of Fisheries and Oceans Scale Lab in Nanaimo, BC. The steelhead samples were sent to the Ministry of Environment, Lands and Parks office in Smithers, BC.

Fish ages are presented using Gilbert-Rich notation where the first digit represents total age and the second digit denotes the number of winters the fish resided in fresh water since egg deposition. The daily catch of adult fish of each species at Gitwinksihlkw was used to derive species-specific daily CPUE (catch per unit effort) and these were used to weight the age composition data for chinook and coho. The age data for sockeye salmon were weighted with the reconstructed abundance obtained from tag recovery data. Sex was determined from visual inspection of the fish. However, because many of the fish were ocean-bright, it was difficult to differentiate between males and females. Therefore the sex data are not considered reliable and are not summarized here.

Genetic Stock Identification

Genetic sampling of coho and steelhead was conducted at all four fishwheels and at Meziadin fishway in 1998. A small piece of adipose tissue was hole-punched from fish that were sampled at the fishwheels or fishway and preserved in 95% ethanol (within small vials). The purpose of the sampling was to determine if DNA characteristics can successfully discriminate individual stocks in mixed stock samples and whether the genetic information could help define population structure and within-species diversity (i.e., conservation concerns). Genetic samples

were shipped to DFO Prince Rupert (coho) and MELP Smithers (steelhead) for analysis. Results from the analyses are not presented in this report.

RESULTS

Fishwheel Operation

The level of the Nass River at Gitwinksihlkw varied by 3.2 m between 12 June and 13 October 1998 (Table A-1). The water levels showed significant day-to-day variability throughout the season with a steadily declining trend from early June until early October with substantial peaks in mid-June and in early July (Fig. A-1). Water levels from early June to mid-August 1998 were the lowest observed since the start of the fishwheel program (approximately 1.0 m lower than the 1992-97 average level; Fig. A-1). Water temperature ranged from 6.3° C to 10.0° C over the same period (Table A-1; Fig. A-1).

Fishwheel 1 was operated in the same location as from 1992-97; fishwheel 2 was operated at the site as from 1994-97. Fishwheels 3 and 4 were operated in the same locations for most of 1994, and all of 1995-97. Small changes (<100 m) in the position of fishwheels relative to the bank were common in 1998.

Fishwheel Effort

The fishwheels were operated from 12 June (fishwheels 1 and 2) to 17 September (fishwheel 1), 20 September (fishwheel 2), 5 October (fishwheel 3) and 13 October (fishwheel 4) for an estimated total fishing time of 9,874 h (Table A-2). Combined, the four fishwheels fished 95.7% of the time they were in place (Fig. 2). Fishwheels 1 and 2 began fishing the earliest (12 June) after high water in early June. Fishwheels 3 and 4 began fishing a few days after the lower wheels, 15 June (fishwheel 3) and 18 June (fishwheel 4). The fishwheels operated almost continuously until mid-to-late August (93-98% of the time for each of the four fishwheels from 12 June to 13 October; Table A-2). Fishwheels 1 and 2 fished generally at slower speeds (1-3 RPM) than fishwheels 3 and 4 (2-3 RPM).

Catches and Catch Per Unit Effort

A total of 38,155 salmon (35,619 adults, 2,536 jacks) were captured in the fishwheels in 1998 (Table 1). The sockeye salmon catch was the largest (19,176), followed by pink (*O. gorbuscha*; 10,624), coho (3,869), chinook (3,507), steelhead (707), and chum (272). Fishwheel 3 captured the most fish (10,729), followed by fishwheel 4 (10,686), fishwheel 1 (10,307), and fishwheel 2 (6,433).

The CPUE for chinook salmon in fishwheels 1 and 2 showed the majority of the run passing Gitwinksihlkw by mid-to-late June (Fig. 3). Catches at Gitwinksihlkw peaked on 19 June with 203 adults caught (66 in fishwheel 1 and 137 in fishwheel 2; Table B-1). The 50% point of the cumulative CPUE occurred on 20 June for both fishwheels 1 and 2. The total catches in fishwheel 3 and 4 (Grease Harbour) were 1.5 times higher than the total catches in

fishwheels 1 and 2 (Fig. 3; Table B-1). The peak catches of adult chinook occurred on 23 June for fishwheel 3 (191) and 26 June for fishwheel 4 (60). The CPUE for chinook captured in fishwheel 3 was much higher than the CPUE for all wheels in late June (Fig. 3).

The CPUE for sockeye salmon in fishwheel 2 was considerably lower than observed in other years but remained higher than the CPUE for fishwheel 1 from mid-June to mid-July (see Annual Reports; Fig. 4; Table B-2). The CPUE for fishwheel 1 was relatively consistent with several small peaks in late July and August; whereas, the CPUE for fishwheel 2 showed distinct peaks in late June and early July (Fig. 4). The peak catch of adult sockeye at Gitwinksihlkw occurred in fishwheel 2 on 7 July with a catch of 179 fish and a CPUE of 7.4 fish per hour (Table B-2). The 50% point in the cumulative CPUE occurred on 21 July for fishwheel 1, 6 July for fishwheel 2, 28 July for fishwheel 3, and 30 July for fishwheel 4. The pattern of CPUE for sockeye salmon versus time was similar for both fishwheels 3 and 4 except for an unusual spike in abundance for fishwheel 3 in mid-August (Fig. 4). Catches in fishwheel 3 and 4 peaked on 26 July with 228 and 168 fish, respectively (Table B-2).

The CPUE for coho salmon showed peaks in abundance between 16 and 20 August for all four fishwheels (Table B-3; Fig. 5). We assumed that the fishwheels did not operate through the entire coho run and the fishwheel catches represented early-to-mid-run stocks, presumably coho stocks destined above the Cranberry River (Fig. 5). The first adult coho salmon was captured on 20 July (fishwheel 1; Table B-3). The peaks in catch for the Gitwinksihlkw fishwheels occurred on 16 August (fishwheel 2 [38]) and 20 August (fishwheel 1 [105]; Table B-3). The peaks in catch for the Grease Harbour fishwheels occurred on 16 August (fishwheel 4 [114]) and 19 August (fishwheel 3 [46]). The 50% point of the cumulative CPUE for fishwheels 1, 2, 3, and 4 occurred on 16 August, 20 August, 23 August, and 27 August, respectively.

Peak catches of steelhead occurred at Gitwinksihlkw in fishwheel 1 on 21 August (13) and in fishwheel 2 on the 4 and 19 August (4; Table B-4). The first peak in catches for Grease Harbour occurred on 21 August for fishwheel 3 (18) and on 5 September in fishwheel 4 (29; Table B-4). Over the entire season, fishwheel 4 captured the most steelhead (355) followed by fishwheel 3 (162), fishwheel 1 (119), and fishwheel 2 (71). As with the coho run, we assumed that the fishwheels did not operate for the entire steelhead run (Fig. 6; Table B-4). The 50% point of the cumulative CPUE for fishwheels 1, 2, 3, and 4 occurred on 21 August, 16 August, 21 August, and 3 September, respectively.

The CPUE for pink salmon showed bimodal peaks in early August and late August at Gitwinksihlkw and a single peak in mid-August at Grease Harbour (Fig. 7). The largest catch occurred on 17 August in fishwheel 1 (507; Table B-5). The first pink salmon was caught on 4 July in fishwheel 2.

The CPUE for chum salmon showed a protracted run timing pattern that began in late July to mid-October (Fig. 8). The peak catch of chum salmon (9) occurred on 17 September in fishwheel 1 (Table B-5). The first chum salmon was caught in fishwheel 1 on 29 June (Table B-5).

Catches of other salmonid species (Table B-6) included 388 Dolly Varden (*Salvelinus malma*), 140 whitefish (*Prosopium cylindraceum*), 61 cutthroat trout (*O. clarki*), and 9 rainbow trout (*O. mykiss*). Catches of non-salmonids species (Table B-7) included 38 longnose suckers (*Catostomus catostomus*), 84 northern squawfish (*Ptychocheilus oregonensis*), and 69 prickley sculpin (*Cottus asper*).

A total of 194 adult Pacific lamprey were caught in four fishwheels (Table B-7). The first lamprey was caught on 17 June in fishwheel 2. The largest catch occurred on 17 August in fishwheel 4 (10 lamprey; Table B-7). Fishwheel 4 caught 70% (136 lamprey) of the total.

Fishwheel catches of Pacific salmon smolts included 23 coho, 57 steelhead, and 8 chinook smolts (Table B-8). The fishwheels are not operated during the majority of the smolt out-migration periods for each species and are reported here as additional information. The first smolts were caught in the fishwheels on 15 June. Most of the smolts captured in 1998 were caught in fishwheels 3 and 4.

Tagging

A total of 4,030 sockeye, 1,606 chinook, 2,766 coho salmon, and 635 steelhead were tagged at the fishwheels in 1998 (Table 1). These totals represented 23 % of the sockeye, 52% of the chinook, 74% of the coho, and 90% of the steelhead caught in the four fishwheels. The majority of the salmon (73%) were tagged at fishwheels 1 and 2.

Tag Recovery

A total of 3,329 spaghetti- and operculum-tagged fish were recovered at various locations in the Nass watershed (Table 2). Most of the recoveries were at the Meziadin fishway (2,018), followed by the fishwheels (929), in-river fisheries (257) and at the spawning grounds (125).

Of the 257 tags returned from the in-river fisheries, 121 chinook, 124 sockeye and 12 coho tags were recovered in 1998 (Table 2). The Nisga'a fishery accounted for 88.4% (107), 96.8% (122) and 42.0% (5) of the chinook, sockeye and coho tag recoveries, respectively. We were unable to reliably estimate the participation rate of the fishers that returned tags (i.e., portion of their catch of tags that they turned in) so it was not possible to calculate an accurate differential rate of removal of tagged fish in the fisheries. However, for chinook salmon, we assumed that half of the tags recaptured in the Nisga'a and sport fisheries were returned. This proportion was based on our experience working in the area and on knowledge of the total chinook harvest by the Nisga'a fishery (Link and Nass 1999).

Recaptures of tagged fish in the fishwheels indicate that on average chinook salmon exhibited the greatest time between tagging and subsequent recapture among the three tagged species. Operculum-tagged chinook salmon averaged (by fishwheel recaptured) 3 to 13 d at large before recapture in one of the fishwheels (Table C-1). The time at large for tagged chinook ranged from less than 1 to 31 d (n = 136) between tagging and subsequent recapture in all four fishwheels (Table C-2; Fig. 9). There were four tagged chinook salmon recovered at the

Meziadin fishway that travelled an average of 63 d after tagging (range between 50 and 79 d; Table C-2). There were other tagged chinook observed at the Meziadin fishway; however, they were not captured (and tag numbers read) in order to avoid handling and delaying the migration of the fish.

Recaptures of tagged sockeye at the fishwheels indicated that on average sockeye spend considerably less time at large than do tagged chinook (Table C-3; Fig. 10). On average, tagged sockeye were recovered at fishwheels 1 and 2 within 2 d of being tagged, and recaptured in fishwheels 3 and 4 within 7 d (Table C-3). Recoveries of fish tagged in fishwheel 1 showed a similar distribution of time at large to those fish tagged in fishwheel 2 (Fig. 10). A total of 1,531 sockeye tags were recovered at the Meziadin fishway that travelled an average of 22 d after tagging (range between 9 and 72 d; Table C-3).

Recaptures of tagged coho at the fishwheels indicate that on average coho spent slightly more time at large than did tagged sockeye (Tables C-1 and C-4). Tagged coho salmon averaged (by fishwheel recaptured) 4 to 12 d at large before recapture in the fishwheels. The time at large for tagged coho salmon ranged from less than 1 to 50 d (n = 390) between tagging and subsequent recapture in all of the fishwheels (Table C-4). A total of 96 coho tags were recovered at the Meziadin fishway. The average travel time from tagging to the Meziadin fishway was 36 d (range between 8 and 64 d; Table C-4).

Counts of adult salmon at the Meziadin fishway included 163,998 sockeye, 1,991 coho, and 498 chinook salmon from 28 June to 22 October 1998 (Tables D-1 and D-2). Sockeye counts at the fishway showed two modes; one peak occurred on 10 July with a count of 8,265 adult sockeye, and a second peak was on 25 August with a count of 7,396 (Fig. 11; Table D-1). The daily proportion of the sockeye count that was tagged ranged from 0% (primarily late September) to 11.1% (14 October) and averaged 1.1% (Fig. 11; Table D-1).

Of the 1,875 tagged sockeye observed at the Meziadin fishway, 1,531 (82%) were dipnetted out and their tag numbers were recorded (Table D-1). The remainder were simply counted as they passed through the viewing chute. Further description and analysis of the tagged sockeye recoveries at the Meziadin fishway is discussed below (see **Run Reconstruction**).

The peak count of adult coho salmon at the Meziadin fishway was 195 fish on 11 September (Fig. 11; Table D-2). A total of 114 tagged coho salmon were counted at the fishway representing 5.7% of the total count. Of the 114 tagged coho observed at the fishway, 96 (84%) were dipnetted out and their tag numbers were recorded.

The peak count of adult chinook at the Meziadin fishway was 29 fish on 13 September (Table D-2). A total of 24 tagged chinook salmon were counted at the fishway representing 4.8% of the total count (Table D-2). Four (17%) of the 24 tags that were counted were dipnetted out and their tag numbers were recorded.

Escapement Estimates

In-season Escapement Estimates

From late June to late August, sockeye escapement estimates were generated daily and provided to the Department of Fisheries and Oceans in Prince Rupert at least three times per week (Table D-3). Prior to 26 June, there were insufficient tag recoveries (< 12) to derive a reliable mark-recapture estimate, and escapement estimates were based on the period-specific expansion factors for fishwheels 1 and 2.

Post-season Escapement Estimates

For sockeye and coho salmon, a range of post-season Petersen population estimates were calculated assuming that tagged fish were selectively removed from the population at rates of 0% to 30% (Table 3). The sockeye escapement estimates ranged from 246,698 (30% differential removal of tagged fish) to 352,388 (0% removal of tagged fish) at Gitwinksihlkw.

The pooled Petersen coho salmon escapement estimate ranged from 32,949 (30% removal of tagged fish) to 47,063 (0% removal; Table 3) at Grease Harbour. These estimates are based on 1,991 fish examined and 114 tags recovered from coho salmon at the Meziadin fishway. The tagging of the Nass coho run was incomplete because coho are caught in the Nass River from July to December (i.e., beyond the period when the fishwheels operated at Gitwinksihlkw in 1998 and beyond the time when Meziadin coho move through the lower river). Therefore, these are considered minimum estimates of the Nass coho salmon escapement.

A total of six surveys were conducted on two different spawning grounds (plus the Meziadin fishway counts) to obtain information to estimate the chinook salmon escapement (Table 4). A total of 1,573 chinook were examined and 85 tags were recovered for an estimate of 23,513 (at Grease Harbour) with 95% confidence intervals of 19,059 to 28,994. This estimate is based on an adjustment to the total number of chinook tagged. The effective number of chinook tagged was reduced by 322 fish to account for tag loss/mortality (5% or 80 fish) and in-river fisheries (242 tags). The estimated number of tags removed by in-river fisheries was based on 121 tags returned by fishers and an assumption of 50% return rate (Link and Nass 1999).

The proportions of the chinook, sockeye, and coho salmon run captured in all the fishwheels based on the fishwheel catches and mark-recapture derived population estimates above Gitwinksihlkw were 12.6%, 6.2%, and 8.9%, respectively (Table 5). In 1998, fishwheel 3 captured the greatest proportion of the run for all species combined (3.0%), followed by fishwheels 4 (2.3%), 2 (1.4%) and 1 (0.9%).

Run Reconstruction

Analysis of the 1,531 spaghetti tags recovered from sockeye at the Meziadin fishway revealed a positively skewed distribution of travel times with a mode and median of 21 d and a mean of 22.5 d (Fig. 12a; Tables 6 and C-3). The tag recovery data indicate an average speed from the fishwheels to the fishway of 6.7 km per day with a maximum speed of 16.7 km per day (i.e., fish with a 9-d travel time). The mean travel times for tagged sockeye salmon to travel from the fishwheels to the Meziadin fishway (by tagging period) increased slightly in late July and late August, presumably caused by differences in Nass River discharges (Fig. 12b and Fig. A-1). However, as observed in past years, travel times revealed a pattern of decreasing travel times (increasing migration speed) through the season. Coho salmon exhibited a similar migration pattern as sockeye with decreasing travel time by tagging period; but with overall slower mean travel times from fishwheels to the fishway (mean=35.9 d [range 8 d to 64 d]; Table C-4).

The reconstructed sockeye salmon abundance at Gitwinksihlkw indicated that the estimated daily efficiency of the two Gitwinksihlkw fishwheels (1 and 2) did not show a consistent trend through the season (Fig. 13). However, the efficiency of the two fishwheels appeared to co-vary with generally higher efficiencies in late June and early July and late August and early September than at other times. The fishwheel efficiency did not appear to be correlated with the abundance (Fig. 13), suggesting density-independent catchability (fishwheel efficiency).

Moderate water levels in late June, early July and late August appeared to produce the highest fishwheel efficiencies, while very low (mid-to-late July and early August) water levels resulted in lower fishwheel efficiencies (Fig. 14). Like in past years, caution should be used in interpreting these data because the high estimated efficiencies in late August are based on a relatively small number of fish recovered.

Age and Length Sampling

The majority of the chinook salmon that returned to the Nass River in 1998 were 5-year-old fish (75.6%); 75.2% left freshwater during their second year of life (5_2) based on chinook sampled at the fishwheels and weighted using the CPUE in the Gitwinksihlkw fishwheels (Table 7). The other significant age classes were 4_2 (12.9%) and 6_2 (11.1%). The chinook salmon age and length data are presented in Table E-1 and summarized in Tables 7 and 8. Ages could not be determined for 17% of the chinook salmon sampled (Table E-1).

Seventy one percent of the sockeye salmon that returned to the Nass River in 1998 were 5-year-old fish (brood year 1993, Table 7) and 20% were 4-year-old fish (brood year 1994). The sockeye salmon age and length data are presented in Table E-2 and summarized in Tables E-3, E-4, 7 and 8. Ages could not be determined for 7% of the sockeye salmon sampled (Table E-2). The 5-year-old fish dominated the run throughout the season but were in greater proportion after week 27 when the proportion of 4-year-old fish peaked in abundance (Fig. 15). Of the 5-year-old fish, age class 5_2 fish dominated from weeks 24 to 30 and 5_3 dominated from weeks 32 to 38.

The age composition of coho salmon that returned to the Nass in 1998 was split between age-3 (36.2%) and age-4 (63.5%) fish (Table 7). There was one age-5_4 coho salmon that returned to the Nass in 1998 (Tables E-5, 7 and 8). Ages could not be determined for 34% of the coho salmon sampled (Table E-5).

Mean length data by age for sockeye, chinook and coho salmon are summarized in Table 8. Age-length frequencies for chinook, coho and sockeye are presented in Figures 16 and 17. The most frequent mean length for sockeye, chinook and coho salmon was 60.4 cm (5_3 fish, n=675), 89.6 cm (5_2 fish, n=282), and 66.5 cm (4_3 fish, n=715), respectively.

Genetic Stock Identification

Totals of 1,024 and 103 DNA samples were collected from coho sampled at the fishwheels (2 August to 19 September) and Meziadin fishway (25 August to 18 September), respectively. Totals of 588 and 33 DNA samples were collected from steelhead sampled at the fishwheels (12 June to 13 October) and Meziadin fishway (26 August to 21 October), respectively.

DISCUSSION

Operational Evaluation

Water levels from mid-June to mid-August were about 1 m lower than mean levels from 1992 to 1997 and influenced fishwheel speeds and efficiencies (Figs. 2 and A-1). Fishwheel 1 provided the most consistent fishing effort throughout the entire season but caught the least amount of fish. Fishwheel 2 fished poorly for most of the season when low water levels resulted in slower speeds than 2.0 RPM. Fishwheels 3 and 4 fished well with the lower water levels.

As a consequence of the low water levels in 1998, catch rates were much lower for chinook and sockeye at fishwheel 1 and 2 when compared to the 94-98 averages (Table 9). Coho catch rates were much lower at fishwheel 2 than the 94-98 mean rate but fishwheel 1 remained about the same. This is probably explained by typical water levels observed during the coho migration (Fig. A-1). Fishwheels 3 and 4 experienced higher catch rates for chinook and sockeye during the low water periods but fished with similar catch rates for coho when compared to the 94-98 average catch rates (Table 9). The higher catch rates of fishwheels 3 and 4 during the low water periods are probably a result of a funneling effect of the Grease Harbour canyon that maintains adequate fishing speeds for the fishwheels.

Escapement Estimates

The in-season escapement estimation method for sockeye did not work as well as other years because of lower numbers of sockeye being caught and tagged in the Gitwinksihlkw fishwheels during the low water periods. Since the low water periods were not typical of prior years, the period specific catchability estimates were poor estimates for most of the season (Table D-3 and Fig. A-1). The lower catch (and tag) rates of the Gitwinksihlkw fishwheels resulted in a

lower tag recovery rate at the Grease Harbour fishwheels, and hence, a low mark rate (large catch expansion factors) for estimating the sockeye abundance to Gitwinksihlkw (Table D-3). An effort was made in-season to improve mark rates at Grease Harbour by tagging a higher proportion of the sockeye catch at Gitwinksihlkw (80-90% compared with 50% in other years). As a result of increased tagging, sufficient recoveries (>12) for generating a mark-recapture estimate from Grease Harbour fishwheels were obtained on 27 June. Although the in-season mark-recapture estimates were not as reliable as other years, they did provide a conservative estimate during the season (final in-season estimate of 205,134 vs. post-season estimate of 281,928).

The validity of the assumptions associated with the Petersen estimation procedures that generate the mark-recapture estimates from the fishwheel program has been extensively discussed in other reports (Link et al. 1996; Link and English 1996, 1997; Link 1999; Link and Nass 1999; Link et al. 2000a, 2000b). These authors concluded that some differential loss of tagged fish likely occurs each year, primarily due to handling effects and selective removal from the Nisga'a fishery. The bias from this loss would result in an overestimate of the escapement if one assumed equal survival between tagged and non-tagged fish.

A differential removal rate of 20% for sockeye salmon was used to derive a population estimate in 1998 as in other years (Annual Reports). The tag removal rate is based on the assumption that approximately 5% of the tags are selectively removed in the food fisheries (Link and English 1997) and 15% are mortalities (Link and Gurak 1997). If we assume a 50% participation rate of tag returns in the in-river fisheries, the selective removal rate of tags in food fisheries in 1998 was calculated at 6.2% (i.e., 124 tags returned, expanded to 248 tags selectively removed). Since we cannot calculate a mortality estimate or reliably determine the tag return rate in 1998, we concluded that the 20% differential removal rate appears to be reasonable when compared to other years.

For chinook salmon, the differential removal rate of 20.5% was estimated in 1998 by assuming a 5% tag mortality rate (Koski et al. 1996a,b) and calculating a 15.5% tag removal rate in the in-river fisheries from the expansion of the chinook tag returns (121) by the 50% participation rate as recommended by Link and Nass (1999). The 1998 differential removal rate for chinook appears reasonable when compared to other years. The differential removal rate for Nass chinook has been estimated between 10% (1997; Link and Nass 1999) and 15% (1995-96; Link and Gurak 1997; Link 1999). Extensive sampling of the Nisga'a fishery in 1994 resulted in the best estimate (12.2%) of differential removal when using tag returns (Link and English 1997).

A differential removal rate of 10% for coho salmon was used to derive a population estimate in 1998 as in other years (Annual Reports). The tag removal rate is based on the assumption that approximately 2% of the tags are selectively removed in the food fisheries and 8% are mortalities (Link and Gurak 1997). Based on a 50% expansion rate of coho tags returned in the in-river fisheries, we calculated a 1% selective removal rate of tags in food fisheries. Since the participation rate of returning tags cannot be accurately determined, we concluded that the 10% differential rate would be reasonable for generating an escapement estimate.

A re-sampling of the food fishery for tag rates (similar as conducted in 1994) and a well publicized tag-return-program are recommended in the future for accurately determining the number of tags to censor from the mark-recapture experiment.

Summary of Final Escapement Estimates

The estimated chinook salmon harvest in the Nisga'a fishery in 1998 was 8,839 (Barner and Nass 1999) and the estimated sport fishery harvest was 196 (Tseax and Seaskinnish rivers only; Baxter and Nass 1999). Using estimates of the Nisga'a harvest above Gitwinksihlkw (1,595), Gitanyow harvest (300), and the sport fishery harvests (196), the net chinook spawning escapement in 1998 was estimated to be 23,213 (Table 10). The estimate of the total escapement of chinook salmon to the Nass River in 1998 (after ocean fishery harvests) was 32,548 (Table 10).

Using the same method as above, the net sockeye escapement in 1998 was estimated to be 266,458 (Table 10). A minimum estimate of net spawning escapement for Nass River coho was 42,320 (Table 10). Since the fishwheels were operated longer in 1998 compared to any other year, the coho estimate is considered to represent a greater proportion of the total run compared to any other year. The estimated total escapement to the Nass River for sockeye (304,888) and coho (44,417) was derived by adding in-river harvests below the fishwheels to the mark-recapture population estimates above the fishwheels (Table 10).

Based on the Meziadin fishway count of sockeye salmon and the system-wide escapement estimate, the Meziadin stock comprised 61.5% of the Nass sockeye escapement in 1998. The tag-based estimate of the proportion of the Nass escapement bound for the Meziadin fishway was 27% smaller than the estimate derived from the traditional scale-based method (88.6%; Todd and Dickson 1970; L. Jantz, Department of Fisheries and Oceans, Prince Rupert, pers. comm.; Table 11). Since the results from the two methods varied greatly, more research is required to determine the best method for accurately estimating stock composition for Nass sockeye salmon.

Fishwheels as a Test Fishery

Even though extreme low water levels resulted in less-than-precise estimates of sockeye abundance during the season, the inter-annual variability of the efficiency or catchability (q) of the Nass River fishwheels is still more reliable than the historical variability in the catchability of the Monkley Dump test fishery (Link et al. 1996; Link and English 1996, 1997; Link and Gurak 1997; Link 1999; Link et al. 2000a). Similar to other years, the fishwheel catchability at Gitwinksihlkw did not appear to be related to abundance, but rather to be influenced by the absolute water level of the Nass River (Figs. 13 and 14). The influence of water level on the efficiency of the fishwheels may be quantified in the near future with more years of catch and water level data. Once a reliable relationship is determined between catch efficiency and water level data, improvements to the in-season estimates of q may be possible. Until that relationship

is determined, it is essential that the tagging and mark-recapture program remain an integral component of the fishwheel program for assessing the in-season variation in the catchability of the fishwheels.

ACKNOWLEDGMENTS

The fishwheel crew was crucial to making the 1998 project a success; Barry Stevens was the field project leader responsible for the construction, maintenance and operation of all fishwheels, and overseeing the tagging program. Barry was supported by senior technicians, Tim Angus, Kevin Small and Max Wright. Other technicians were: Charles Morven, Todd Ducharme, Craig Haizimsque, Lawrence Stephens, Glenn Robinson, and Barry Smythe. Niva Percival proficiently handled the in-season data entry, compilation and presentation. Nisga'a Fisheries managers, Glenn Barner, Bruce Baxter (LGL), and Cheryl Stephens, provided field support when needed and were invaluable to the success of the fishwheel program.

Dean Miller, Kerry Rees, Mike Ousey, Tanner Deery, Tyler Munro, and Michelle Pask staffed the Meziadin fishway and their dedicated tag recovery efforts were invaluable to the analysis presented here. Thanks to Dave Southgate, Dave Peacock, Brian Spillsted, and Mike Jakowbowski of DFO for managing the operations at Meziadin fishway.

Additional support provided to the fishwheel program and this report were from Bob Bocking and Karl English (LGL). Much thanks to Les Jantz and Dave Peacock (DFO-Prince Rupert) for commercial catch data, additional tag recoveries, Nass stock status updates, DFO population estimates, and their general support to the Nisga'a Fisheries program.

The three winners of the tag recovery program were Rodney Clayton, Danny Smith and Reuben Gonu. Thanks to all the other fishers that returned tags from the Nisga'a Fisheries stock assessment program.

Funding for this project was provided by the Government of Canada as a part of the Nisga'a-Canada (Aboriginal Fisheries Strategy) Contribution Agreement.

REFERENCES

Barner, G.L. and B.L. Nass. 1999. Nisga'a catch monitoring program: 1998 Nisga'a Fishery. Report NF 98-02 prepared by LGL Limited, Sidney, BC, and Nisga'a Fisheries for the Nisga'a Tribal Council, New Aiyansh, BC.

Baxter, B.E. and B.L. Nass. 1999. Nass River sport fishery catch monitoring program, 1998. Report NF 98-05 prepared by LGL Limited, Sidney, BC, for Nisga'a Tribal Council, New Aiyansh, BC.

Beacham, T.D. and C.C. Wood. 1999. Application of microsatellite DNA variation to estimation of stock composition and escapement of Nass River sockeye salmon (*Oncorhynchus nerka*). Can. J. Fish. Aquat. Sci. 56:297-310.

Donaldson, I.J. and F.K. Cramer. 1971. Fishwheels of the Columbia. Binfords and Mort, Publishers, Portland, Oregon. 124 p.

Haugan, D., A.L. Jantz, and B. Spilsted. 1989. Historical Review of the Meziadin River Fishway Biological Program from 1964 to 1986. Can. Data Rep. Fish. Aquat. Sci. No. 765: iii + 112p.

Holland, S.S. 1976. Landforms of British Columbia, A physiographic outline. British Columbia Department of Mines and Petroleum Resources. Bulletin 48: 138 p.

Koski, W.R., M.R. Link, and K.K. English. 1996a. Distribution, timing, fate and numbers of chinook salmon returning to the Nass River Watershed in 1992. Can. Tech. Rep. Fish. Aquat. Sci. No. 2129: xi + 141 p.

Koski, W.R., R.F. Alexander, and K.K. English. 1996b. Distribution, timing, fate and numbers of chinook salmon returning to the Nass River Watershed in 1993. Can. Manuscr. Rep. Fish. Aquat. Sci. No. 2371: xi + 143 p.

Link, M.R., R.F. Alexander, and A.C. Blakley. 2000a. The 1997 fishwheel project on the Nass River, BC. Can. Manuscr. Rep. Fish. Aquat. Sci. xxxx: xi + 100 p.

Link, M.R., R.F. Alexander, and K.K. English. 2000b. Evaluation of the utility of using fishwheels to assess the abundance of summer-run steelhead returning to the Nass River, BC. Report prepared by LGL Limited for the Fisheries Branch, Ministry of Environment, Lands and Parks, Smithers, BC.

Link, M.R. 1999. The 1996 fishwheel project on the Nass River, BC. Can. Manuscr. Rep. Fish. Aquat. Sci. 2476: xi + 92 p.

Link, M.R. and B.L. Nass. 1999. Estimated abundance of chinook salmon returning to the Nass River, BC, 1997. Can. Manuscr. Rep. Fish. Aquat. Sci. 2475: x + 64 p.

Link, M.R. and A.C. Gurak. 1997. The 1995 Fishwheel Project on the Nass River, BC. Can. Manuscr. Rep. Fish. Aquat. Sci. 2422: xi + 99 p.

Link, M.R. and K.K. English. 1997. The 1994 Fishwheel Project on the Nass River, BC. Can. Manuscr. Rep. Fish. Aquat. Sci. 2421: xi + 93 p.

Link, M.R. and K.K. English. 1996. The 1993 Fishwheel Project on the Nass River and an Evaluation of Fishwheels as an Inseason Management and Stock Assessment Tool for the Nass River. Can. Tech. Rep. Fish. Aquat. Sci. 2130: xi + 103 p.

Link, M.R., K.K. English, and R.C. Bocking. 1996. The 1992 Fishwheel Project on the Nass River and an Evaluation of Fishwheels as an Inseason Management and Stock Assessment Tool for the Nass River. Can. Manuscr. Rep. Fish. Aquat. Sci. 2372: x + 82 p.

Meehan, W.R. 1961. The use of a fishwheel in salmon research and management. Trans. Amer. Fish. Soc. 90:490-494.

Nass, B.L. 1998. Nass River sport fishery catch monitoring program, 1997. Report NF 97-05 prepared by LGL Limited, Sidney, BC, for Nisga'a Tribal Council, New Aiyansh, BC.

Nass, B.L. and A.C. Blakley. 1998. Nisga'a catch monitoring program: 1997 Nisga'a fishery. Report NF 97-02 prepared by LGL Limited, Sidney, BC, for Nisga'a Tribal Council, New Aiyansh, BC.

Ricker, W.E. 1975. Computation and interpretation of biological statistics of fish populations. Bull. Fish. Res. Bd. Can. 191:382 p.

Todd, I.S. and F.V. Dickson. 1970. Nass River sockeye salmon a review of the commercial fishery and a summary of the 1963 to 1969 biological programs. Can. Dept. Fish. Forest. Technical Report 1970-10.

TABLES

Table 1. Numbers of each species of salmon caught and tagged at four fishwheels on the Nass River, 1998.

	Fishwheel 1			Fishwheel 2			Fishwheel 3			Fishwheel 4			All fishwheels combined		
	Catch			Catch			Catch			Catch			Catch		
Species	Adults	Jacks	Tagged	Adults	Jacks	Tagged	Adults	Jacks	Tagged	Adults	Jacks	Tagged	Adults	Jacks	Tagged
Chinook	363	132	265	858	100	677	1,268	81	490	582	123	174	3,071	436	1,606
Sockeye	1,623	377	1,294	3,754	252	2,736	6,995	513	0	4,813	849	0	17,185	1,991	4,030
Coho	1,325	44	1,152	371	11	339	673	14	485	1,391	40	790	3,760	109	2,766
Steelhead	119	0	107	71	0	62	162	0	144	355	0	322	707	0	635
Pink	6,225	0	0	1,009	0	0	958	0	0	2,432	0	0	10,624	0	0
Chum	99	0	0	7	0	0	65	0	0	101	0	0	272	0	0
Total	9,754	553	2,818	6,070	363	3,814	10,121	608	1,119	9,674	1,012	1,286	35,619	2,536	9,037

Table 2. A summary of the number of tag recoveries by location for the tags applied at the Nass fishwheels, 1998.

Species	Number of fish tagged	Location					Percent recovered
		Meziadin fishway[a]	Spawning grounds[b]	Fishwheels[c]	Fisheries[d]	Total	
Chinook	1,606	24	80	150	121	375	23.3
Sockeye	4,030	1,875	8	305	124	2,312	57.4
Coho	2,766	114	8	423	12	557	20.1
Steelhead	635	5	29	51	0	85	13.4
Totals	9,037	2,018	125	929	257	3,329	36.8

[a] - Includes all tagged fish observed but not necessarily recovered.

[b] - Chinook tags were recovered at Damdochax (49), Kwinageese (12), Meziadin (7), Cranberry (7), Seaskinnish (2) and Oweegie Cr. (3). Coho tags were recovered at Brown Bear Cr. (1), Cranberry (5), and Tseax (2). Sockeye tags were recovered at Brown Bear Cr. (1), Tseax (2), Zolzap (2) and Meziadin (3). Steelhead tags were recovered at Damdochax/Nass (6), Kwinageese (2), Bell-Irving (8), Meziadin/Nass (2), and Cranberry (11).

[c] - These fish were released back to the river so some of them may have been subsequently counted or recovered.

[d] - Includes recoveries in commercial (1 coho), sport (14 chinook, 2 sockeye, and 6 coho) and in-river fisheries (107 chinook, 122 sockeye, and 5 coho).

Table 3. Population estimates derived from tagging of adult sockeye and coho salmon at the Nass River fishwheels and recovery of tags at the Meziadin fishway, 1998. The best estimates are in italics.

	Sockeye	Coho
Number tagged	4,030	2,716 [a]
Number fish examined for tags	163,998	1,991
Number of tagged fish observed	1,875	114
Pooled Petersen Population estimates (at Gitwinksilkw (sockeye) and Grease Harbour (coho))		
Assumed rate of differential tag removal		
0%	352,388	47,063
10%	317,158	*42,359*
20%	*281,928*	37,654
30%	246,698	32,949
Bounds for Petersen estimate - No differential tag loss		
Lower 95 % CL	336,802	39,237
Upper 95 % CL	368,695	56,436
Bounds for Petersen estimate - 10% differential tag removal		
Lower 95 % CL	303,130	*35,315*
Upper 95 % CL	331,835	*50,794*
Bounds for Petersen estimate - 20% differential tag removal		
Lower 95 % CL	*269,459*	30,569
Upper 95 % CL	*294,974*	43,968

[a] - Excludes 50 coho tags applied after 16 September that would not be available for recovery (based on a mean travel time of 36 d from tagging to fishway and recoveries stopping on 22 October 1998).

Table 4. Summary of escapement survey data and estimated escapement for chinook salmon upstream of Grease Harbour, 1998.

System	No. of surveys	No. of fish examined		Total fish examined	No. of tags	Mark rate (examined/tags)
		Live	Carcasses			
Kwinageese	3		230	230	12	19.2
Damdochax	3		844	844	49	17.2
Meziadin	fishway count	499		499	24	20.8
Totals	6	499	1,074	1,573	85	18.5

Total tags applied:	1,606
[a] Corrected tag total:	1,284
Total fish examined:	1,573
Total tags recovered:	85
Adjusted Petersen escapement estimate past the Grease Harbour fishwheels:	23,513
Lower 95% C.I.:	19,059
Upper 95% C.I.:	28,994

[a] Adjusted for tag loss, selective removal in food fisheries and differential mortality of tagged fish [322 tags censored, to account for tag loss/mortality (5% or 80 fish) and removals by in river fisheries (242 fish)].

Table 5. The estimated percentages of adult chinook, sockeye, and coho captured with four fishwheels on the Nass River, 1998. The percentages were derived using the Petersen escapement estimates and 95% confidence intervals (Tables 3 & 4). The estimated abundance past fishwheels 3 and 4 was determined by subtracting the estimated Nisga'a fishery harvest above Gitwinksihlkw from the estimated escapement above Gitwinksihlkw. The escapement above Gitwinksihlkw was used for calculating the "all fishwheels" percentages.

	Fishwheel 1			Fishwheel 2			Fishwheel 3			Fishwheel 4			All fishwheels		
		Range			Range			Range			Range			Range	
Species	Percent	Lower	Upper	Percent	Lower	Upper	Percent	Lower	Upper	Percent	Lower	Upper	Percent	Lower	Upper
Sockeye	0.6	0.6	0.6	1.3	1.4	1.3	2.6	2.7	2.4	1.8	1.8	1.7	6.2	6.5	6.0
Chinook	1.4	1.9	1.3	3.4	4.5	3.0	5.3	7.3	4.6	2.5	3.3	2.1	12.6	17.0	11.0
Coho	3.1	3.8	2.6	0.9	1.1	0.7	1.6	1.9	1.3	3.3	3.9	2.7	8.9	10.6	7.4
Total, all sp	0.9	1.0	0.9	1.4	1.5	1.3	3.0	3.2	2.8	2.3	2.4	2.2	7.7	8.2	7.2

Table 6. Means, standard errors and 95% confidence intervals for sockeye travel times from the fishwheels to the Meziadin fishway for 3-day release periods, 1998.

Release periods	Number of recoveries	Mean travel time (d)	Standard error	95 % Confidence Interval	
				Lower	Upper
Period ending date					
15-Jun	22	26.8	0.49	25.8	27.8
18-Jun	60	23.7	0.41	22.8	24.5
21-Jun	64	24.5	0.75	23.0	26.0
24-Jun	82	23.1	0.59	21.9	24.3
27-Jun	57	25.3	0.94	23.4	27.2
30-Jun	65	22.3	0.68	20.9	23.7
03-Jul	99	21.5	0.79	19.9	23.1
06-Jul	132	19.8	0.65	18.5	21.1
09-Jul	101	20.0	0.74	18.5	21.5
12-Jul	71	20.5	0.84	18.8	22.1
15-Jul	71	21.8	1.02	19.8	23.8
18-Jul	66	22.5	0.80	20.9	24.1
21-Jul	57	23.8	0.90	22.0	25.6
24-Jul	57	26.1	1.04	24.0	28.2
27-Jul	47	26.3	1.11	24.0	28.5
30-Jul	65	22.5	0.77	20.9	24.0
02-Aug	54	24.2	0.88	22.4	25.9
05-Aug	19	21.4	0.81	19.7	23.0
08-Aug	51	24.1	1.13	21.8	26.3
11-Aug	42	20.2	0.99	18.2	22.2
14-Aug	58	21.5	1.03	19.4	23.5
17-Aug	45	20.7	1.17	18.4	23.0
20-Aug	49	21.8	0.85	20.1	23.5
23-Aug	29	26.7	1.38	24.0	29.5
26-Aug	19	22.9	1.24	20.4	25.4
29-Aug	13	23.5	1.07	21.3	25.6
01-Sep	6	20.2	0.60	19.0	21.4
04-Sep	5	18.4	1.33	15.8	21.1
07-Sep	3	18.0	2.08	13.8	22.2
10-Sep	9	21.1	3.12	14.9	27.4
13-Sep	6	20.7	4.92	10.8	30.5
16-Sep	2	12.5	0.50	11.5	13.5
19-Sep	1	13.0	0.00	13.0	13.0
All periods	1,518	22.5	0.18	22.1	22.9

Table 7. Summary of age composition of chinook, sockeye, and coho salmon sampled at the Nass River fishwheels, 1998. Chinook and coho portions are weighted by weekly Gitwinksihlkw fishwheel CPUE; sockeye composition weighted by the weekly escapement estimates generated by the mark-recapture data. A dash denotes no fish were sampled from that age class. The data underestimate the proportion of chinook under 50 cm nose-fork (32s and 43s) because these fish were not routinely sampled.

	Estimated percent of total run												
	Brood year / Age class												
	1995		1994			1993				1992			1991
Species	31	32	41	42	43	51	52	53	54	62	63	64	72
Chinook	-	0.1	-	12.9	-	0.1	75.2	0.3	-	11.1	0.4	-	-
Sockeye	1.7	-	1.3	18.1	0.4	-	36.5	34.5	-	-	7.4	<0.1	-
Coho	-	36.2	-	-	63.5	-	-	-	0.4	-	-	-	-

Table 8. Mean nose-fork length (cm) of salmon (by age) sampled at the Nass River fishwheels, 1998.

Species	Age class	Number of fish	Mean length (cm)	Standard deviation (cm)
Sockeye	31	34	54.8	4.2
	41	28	58.8	3.1
	42	313	58.1	4.5
	43	7	47.7	1.9
	52	565	63.0	4.1
	53	675	60.4	4.0
	62	1	61.0	-
	63	136	64.7	4.6
	64	1	65.0	-
Chinook	42	67	69.1	6.0
	51	1	88.0	-
	52	282	89.6	6.3
	53	2	63.0	8.5
	62	37	96.3	6.7
	63	2	96.5	3.5
Coho	32	436	64.6	8.4
	43	715	66.5	7.1
	54	2	73.0	2.8

Table 9. The estimated annual catch rates (% of the run captured) of the Nass River fishwheels for chinook, sockeye and coho salmon, 1992-98.

Year	Chinook catch rates (%)					Sockeye catch rates (%)					Coho catch rates (%)				
	Fw1	Fw2	Fw3	Fw4	Total	Fw1	Fw2	Fw3	Fw4	Total	Fw1	Fw2	Fw3	Fw4	Total
1992	1.3	0.8			2.1	1.0	0.3			1.3	0.8	0.2			0.9
1993	1.8	0.7			2.5	1.1	0.6			1.7	0.9	0.8			1.7
1994	3.0	5.4	2.9		11.3	1.6	3.9	2.2		7.7	1.6	1.8	0.9		4.3
1995	3.2	4.8	1.4	0.4	9.8	1.8	2.8	1.8	1.2	7.6	3.4	0.5	1.0	2.2	7.2
1996	2.4	3.8	1.6	1.6	9.4	2.7	3.9	2.1	1.4	10.1	3.0	1.6	1.6	2.0	8.2
1997	5.1	5.9	3.5	4.1	18.6	1.8	3.3	2.9	2.7	10.7	3.8	2.5	1.6	2.3	10.2
1998	1.4	3.4	5.3	2.5	12.6	0.6	1.3	2.6	1.8	6.2	3.1	0.9	1.6	3.3	8.9
92-98 Mean	2.6	3.5	2.9	2.1	9.5	1.5	2.3	2.3	1.7	6.5	2.4	1.2	1.4	2.5	5.9
94-98 Mean	3.0	4.6	2.9	2.1	12.3	1.7	3.0	2.3	1.7	8.5	3.0	1.4	1.4	2.5	7.8
Per fishwheel avg., 94-98					**3.1**					**2.1**					**1.9**

Table 10. Summary of the estimates of catch and escapement to the Nass River for chinook, sockeye and coho salmon, 1998.

	Escapement			Catch [d]				
				Nisga'a harvest			Gitanyow [e]	Sport fishery
Species	Total escapement to the Nass River (TE)	Escapement to Gitwinksihlkw (GWE)	Net spawning escapement (NSE)	Below Gitw. (BGW)	Above Gitw. (AGW)	Total	harvest (GFH)	harvest (SFH)
[a]Chinook	32,548	25,304	23,213	7,244	1,595	8,839	300	196
[b]Sockeye	304,888	281,928	266,458	22,960	9,189	32,149	6,281	-
[c]Coho	44,417	42,416	42,320	2,001	57	2,058	39	0

[a] TE=GWE+BGW
GWE=NSE+AGW+GFH+SFH
NSE=mark-recapture estimate at Grease Harbour (Table 4) - GFH

[b] TE=GWE+BGW
GWE=mark-recapture estimate from Meziadin recoveries (Table 3)
NSE=GWE-AGW-GFH

[c] TE=GWE+BGW (partial or incomplete estimate)
GWE=NSE+AGW+GFH (partial or incomplete estimate)
NSE=mark-recapture estimate at Grease Harbour (Table 3) - GFH (partial or incomplete estimate)

[d] Catch includes all harvests from the Nisga'a (Nass and Blakely 1998), Gitanyow (Les Jantz, DFO-Prince Rupert, pers. comm.), and sport (Nass 1998) fisheries.

[e] Gitanyow are a first nation living in the Skeena watershed.

[na] Not available

Table 11. Comparison of stock composition estimates for Nass River sockeye salmon (percent Meziadin) from scale, genetic and tagging methods, 1986-98.

	Percent Meziadin				Differences		
Year	[a]Scale	GSI	Micro-satellite DNA	[b]Tag	Scale-Genetic	Scale-Tag	Genetic-Tag
1986	61.6	63.5			-1.9		
1987	78.2	57.1			21.0		
1988	85.5	58.5			27.0		
1989	44.5	41.2			3.3		
1990	77.8	71.5			6.3		
1991	92.6	79.9			12.8		
1992	93.3	86.3		81.0	7.0	12.3	5.3
1993	86.5	76.6		73.1	9.9	13.4	3.5
1994	91.2	na		59.0	na	32.2	na
[c]1995	86.2	83.0		76.4	3.2	9.8	6.6
[d]1996	60.9	na	73.0	78.3	-12.1	-17.4	na
1997	65.4	na		59.5	na	5.9	na
[e]1998	88.6	na		61.5	na	27.0	na
Averages:							
Years 92-98	81.7	82.0		69.8	2.0	11.9	5.1
All years	77.9	68.6		69.8	7.7	11.9	5.1

[a] Proportion of Meziadin adult sockeye count (1998: 163,998) to scale estimate (1998: 185,115; Les Jantz, DFO Prince Rupert, pers. com.).

[b] Proportion of Meziadin adult sockeye count (1998: 163,998) to fishwheel escapement estimate (1998: 281,928; Table 3). Tagging method assumes initial 20% differential removal of tagged fish due to net fisheries and handling-induced mortality.

[c] GSI method in 1995 includes only 5 late weeks of the run (50% of escapement), the estimate is likely biased high from the season-total percent Meziadin because first sampling week (adjacent to the bulk of the escapement) was only 68% Meziadin whereas late run weeks were composed of 95-100% Meziadin. This pattern suggests that the early-run component was less than the late-run average of 83%.

[d] The microsatellite DNA estimate is the proportion of Meziadin sockeye from the 1996 Nass test fishery (Beecham and Wood 1999).

[e] The 1998 Meziadin scale estimate is based on circuli counts only.

FIGURES

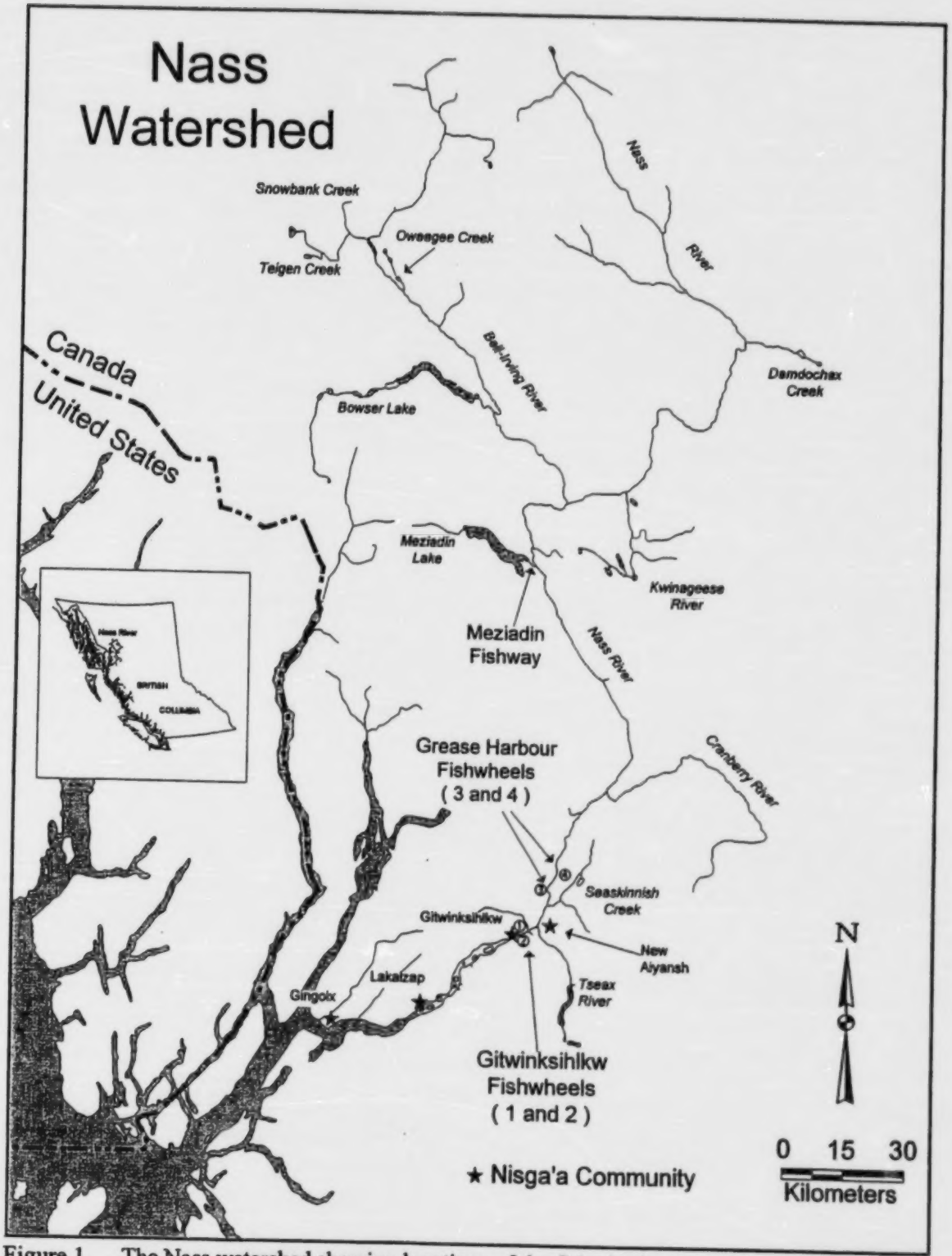


Figure 1. The Nass watershed showing locations of the fishwheels, the Meziadin fishway and chinook spawning areas that were surveyed.

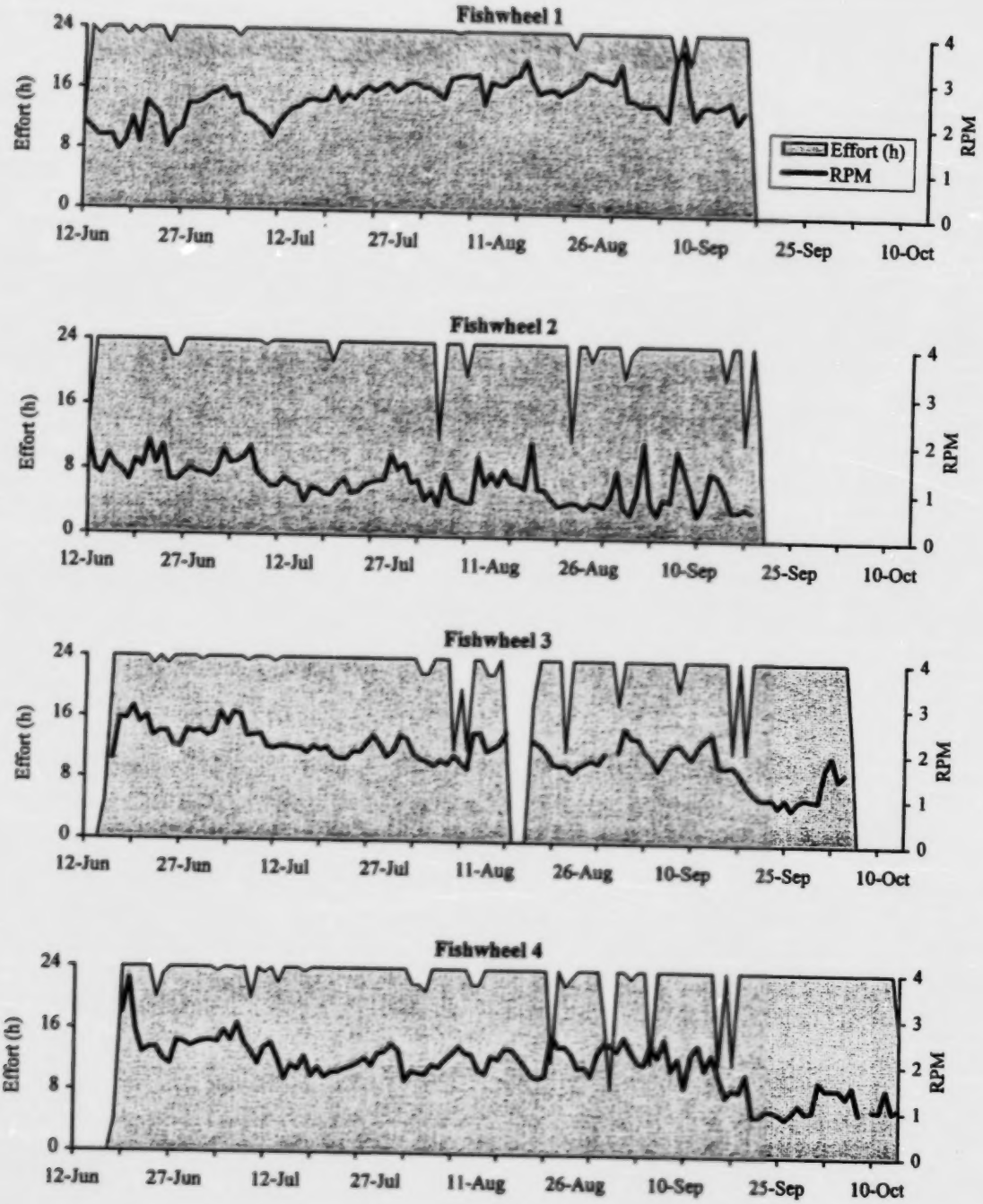


Figure 2. Fishwheel effort (hours) and speed (RPM) for four fishwheels on the Nass River, 1998.

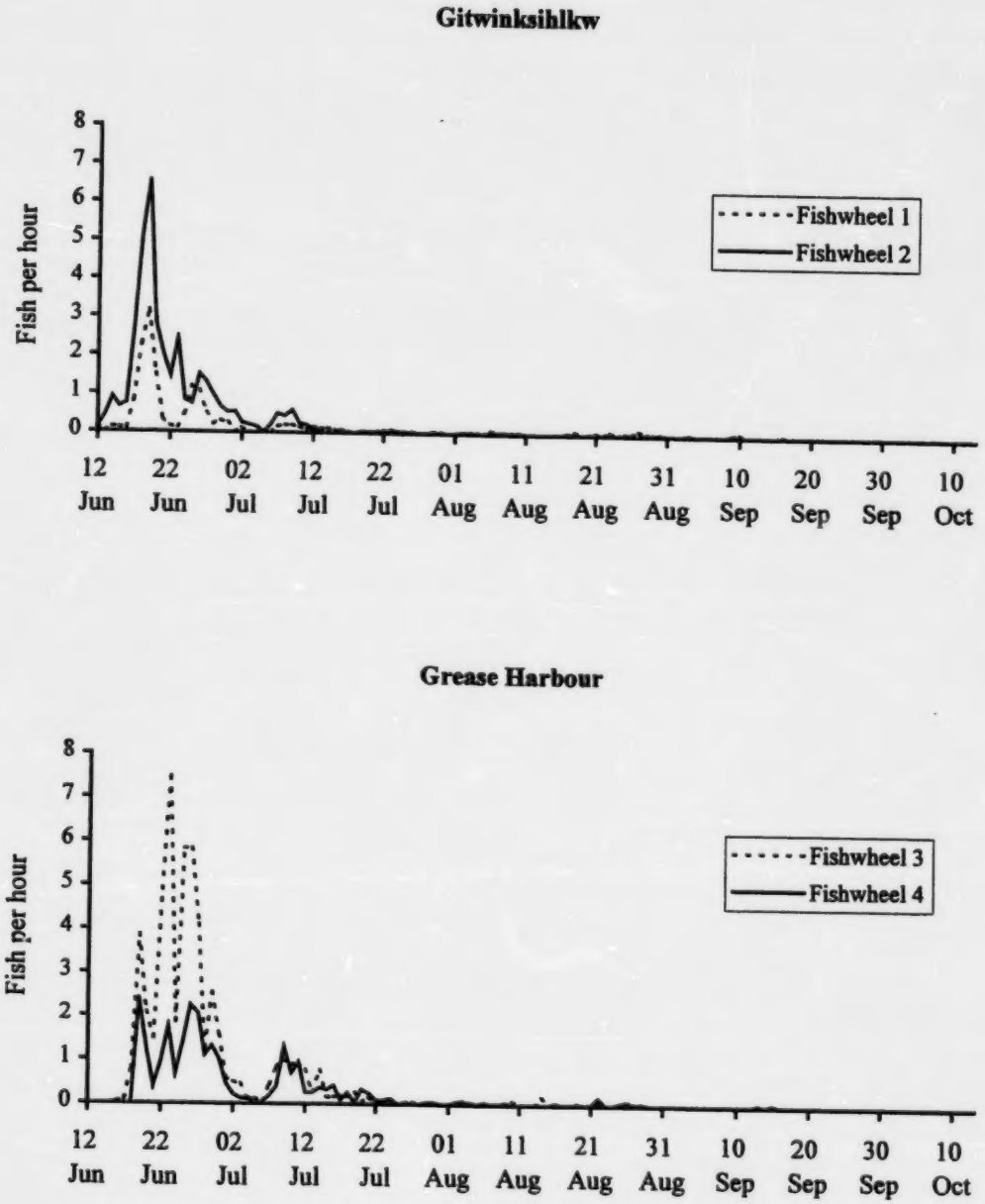


Figure 3. Fishwheel CPUE (catch per wheel hour) for adult chinook salmon captured with four fishwheels on the Nass River, 1998.

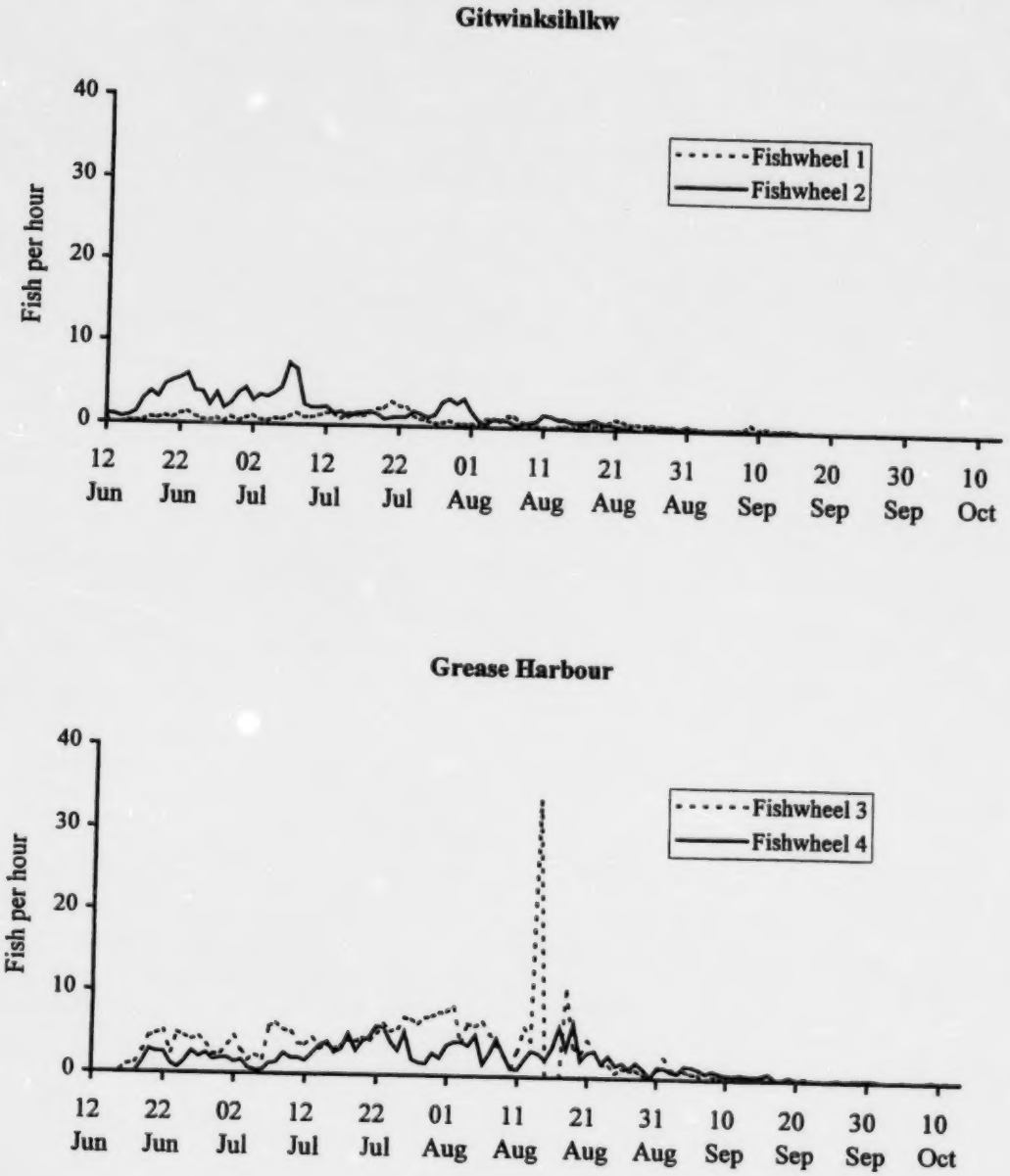


Figure 4. Fishwheel CPUE (catch per wheel hour) for adult sockeye salmon captured with four fishwheels on the Nass River, 1998.

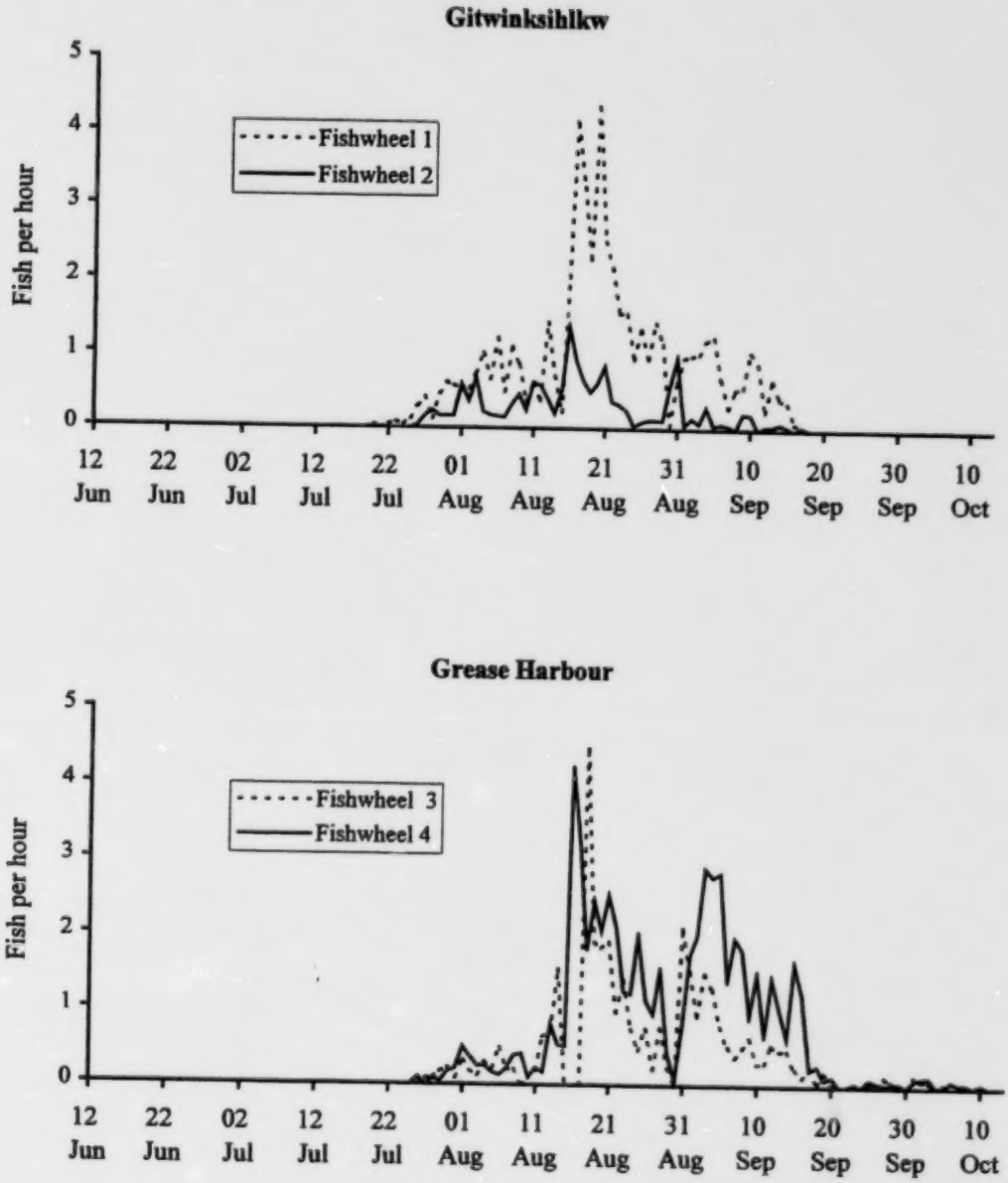


Figure 5. Fishwheel CPUE (catch per wheel hour) for adult coho salmon captured with four fishwheels on the Nass River, 1998.

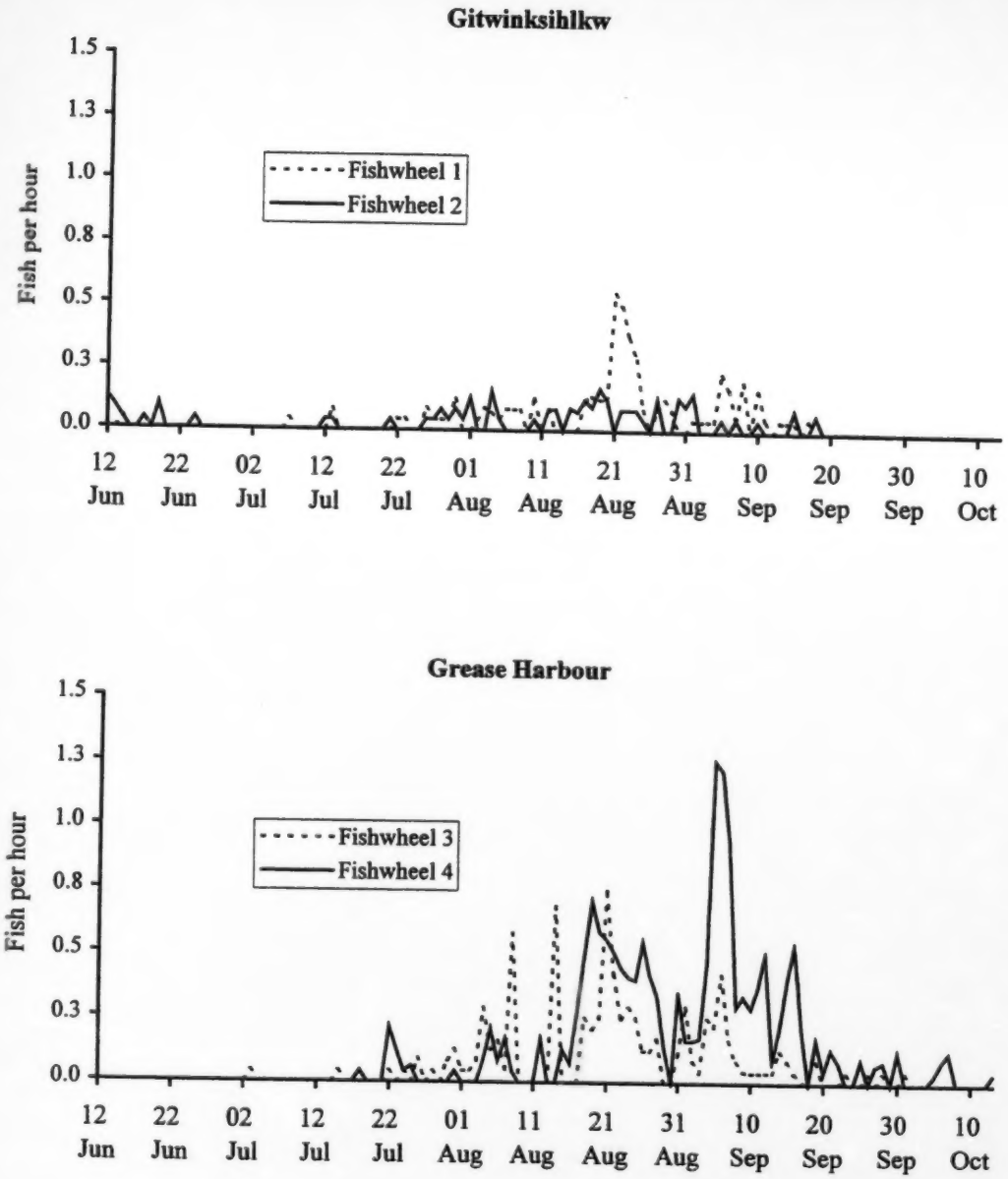


Figure 6. Fishwheel CPUE (catch per wheel hour) for adult steelhead captured with four fishwheels on the Nass River, 1998.

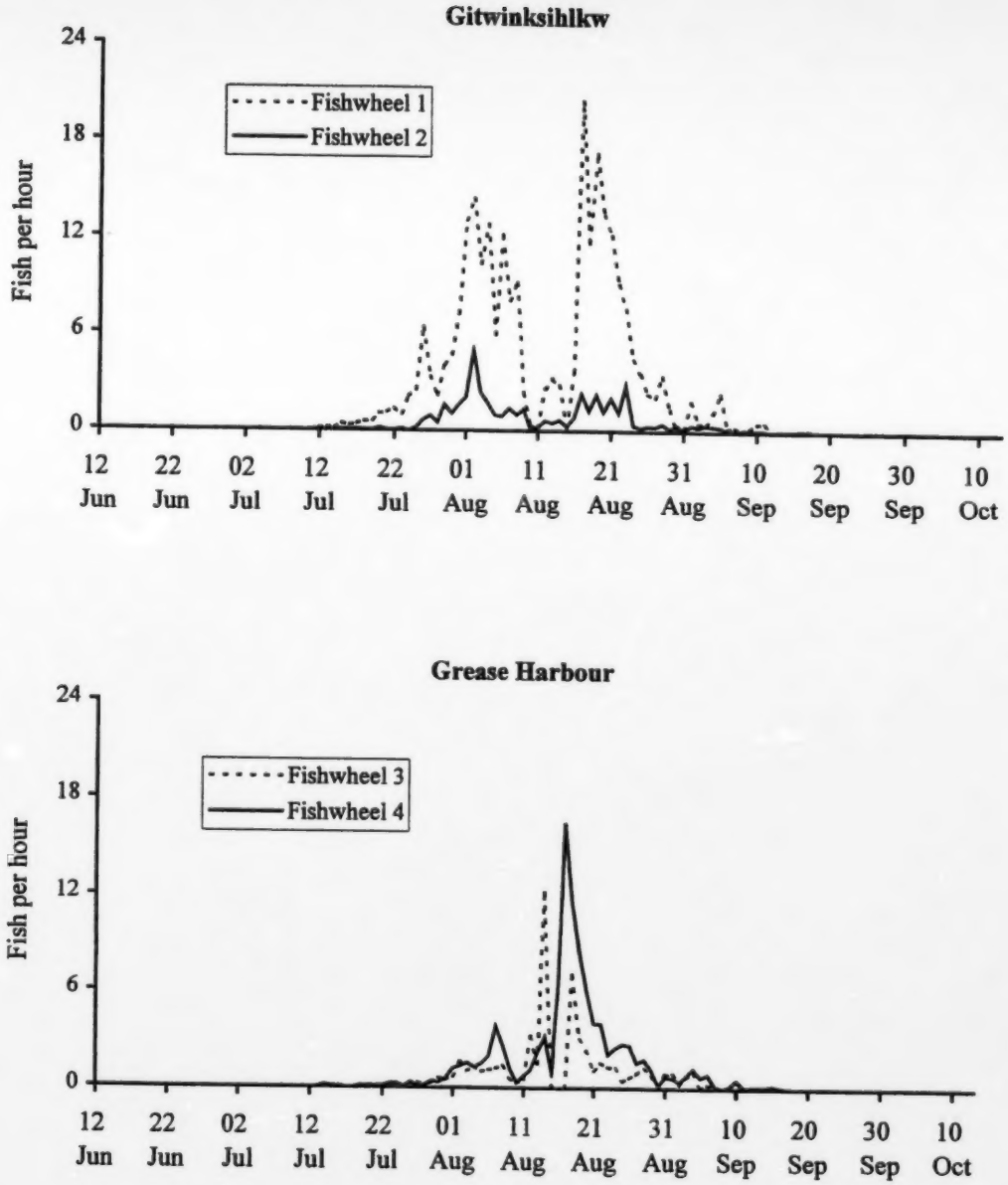


Figure 7. Fishwheel CPUE (catch per wheel hour) for adult pink salmon captured with four fishwheels on the Nass River, 1998.

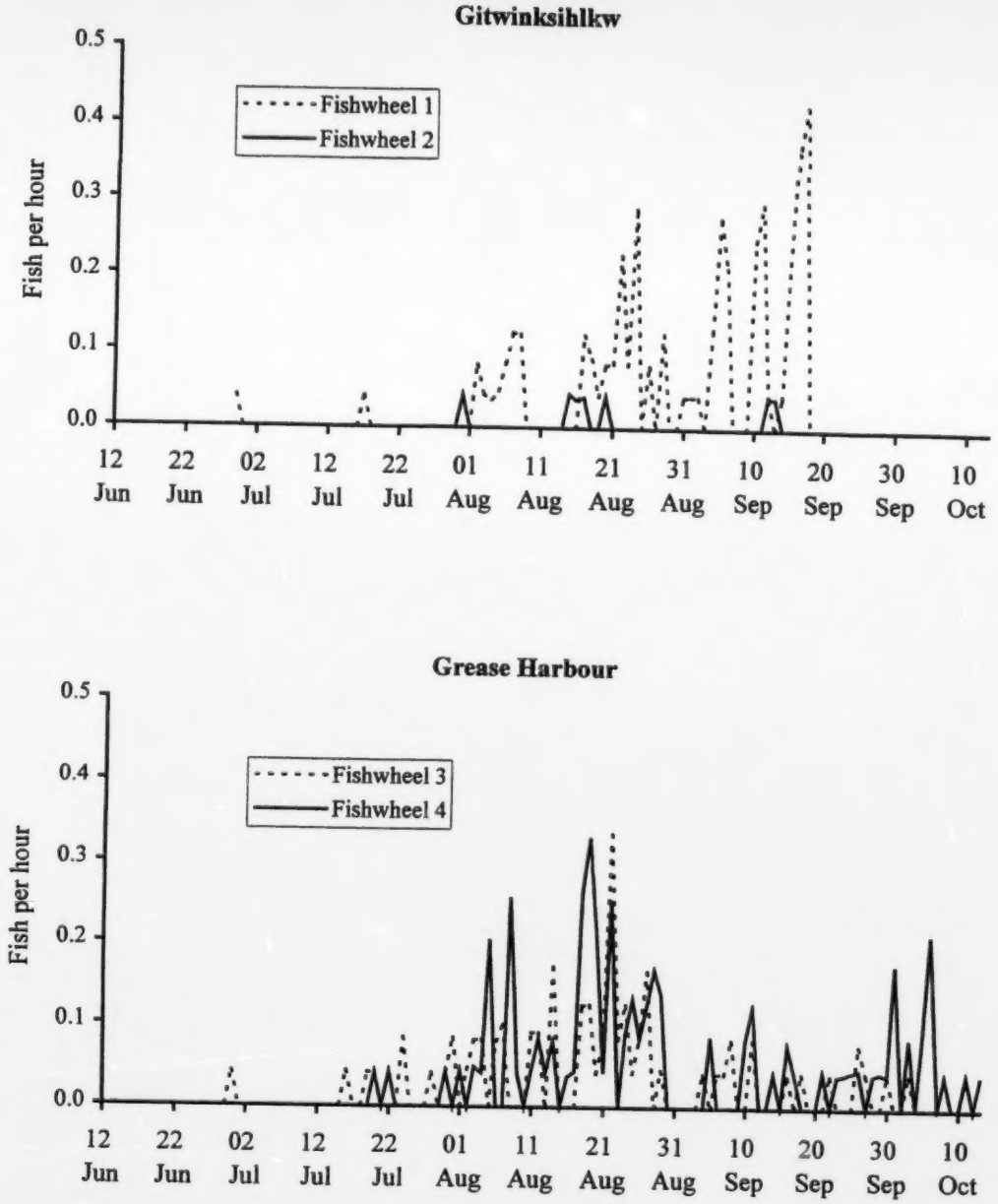


Figure 8. Fishwheel CPUE (catch per wheel hour) for adult chum salmon captured with four fishwheels on the Nass River, 1998.

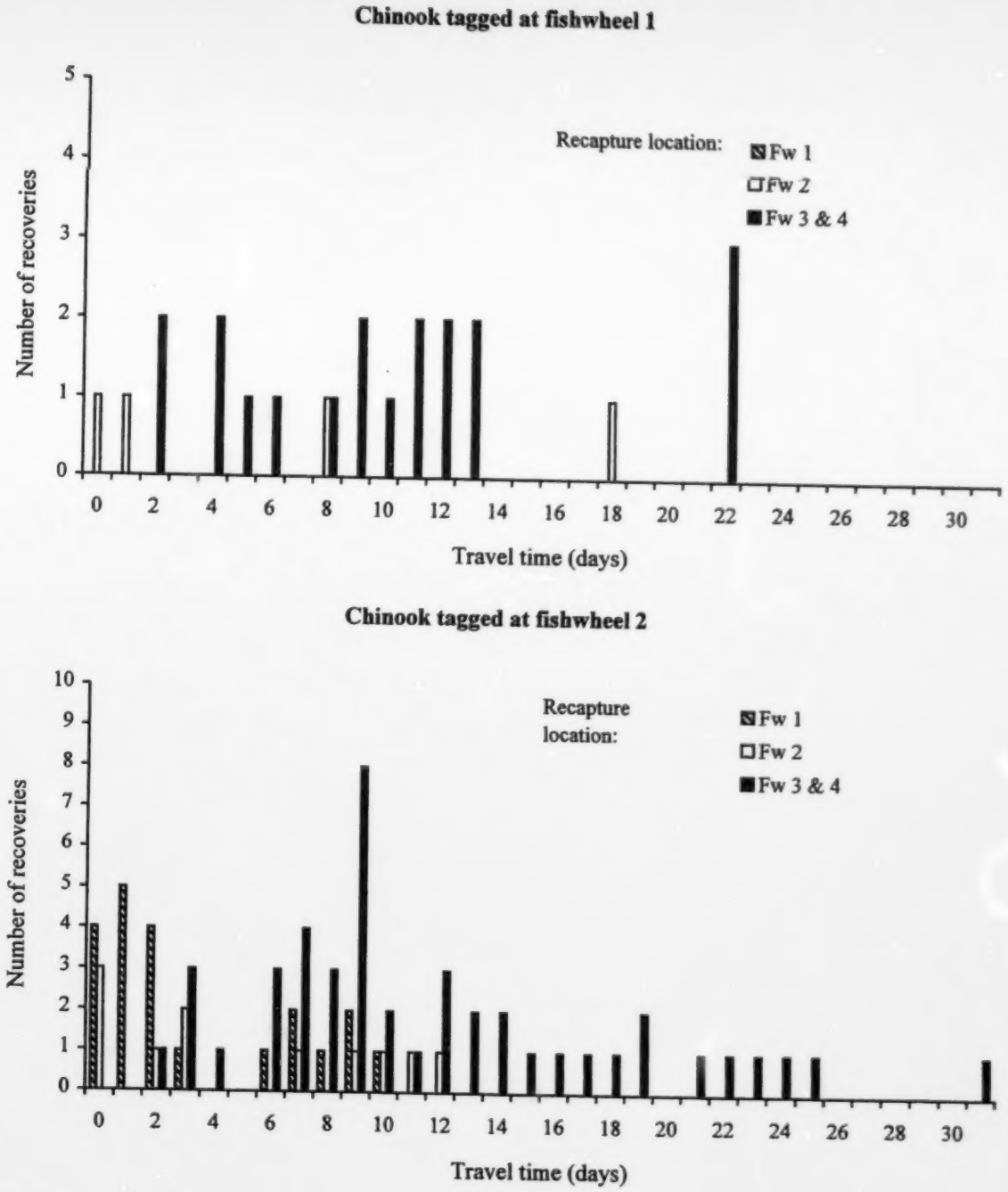


Figure 9. Time between release and recapture for chinook salmon tagged at fishwheels 1 and 2 and subsequently recaptured in each of the four fishwheels, 1998. Fishwheel 3 and 4 were pooled for clarity.

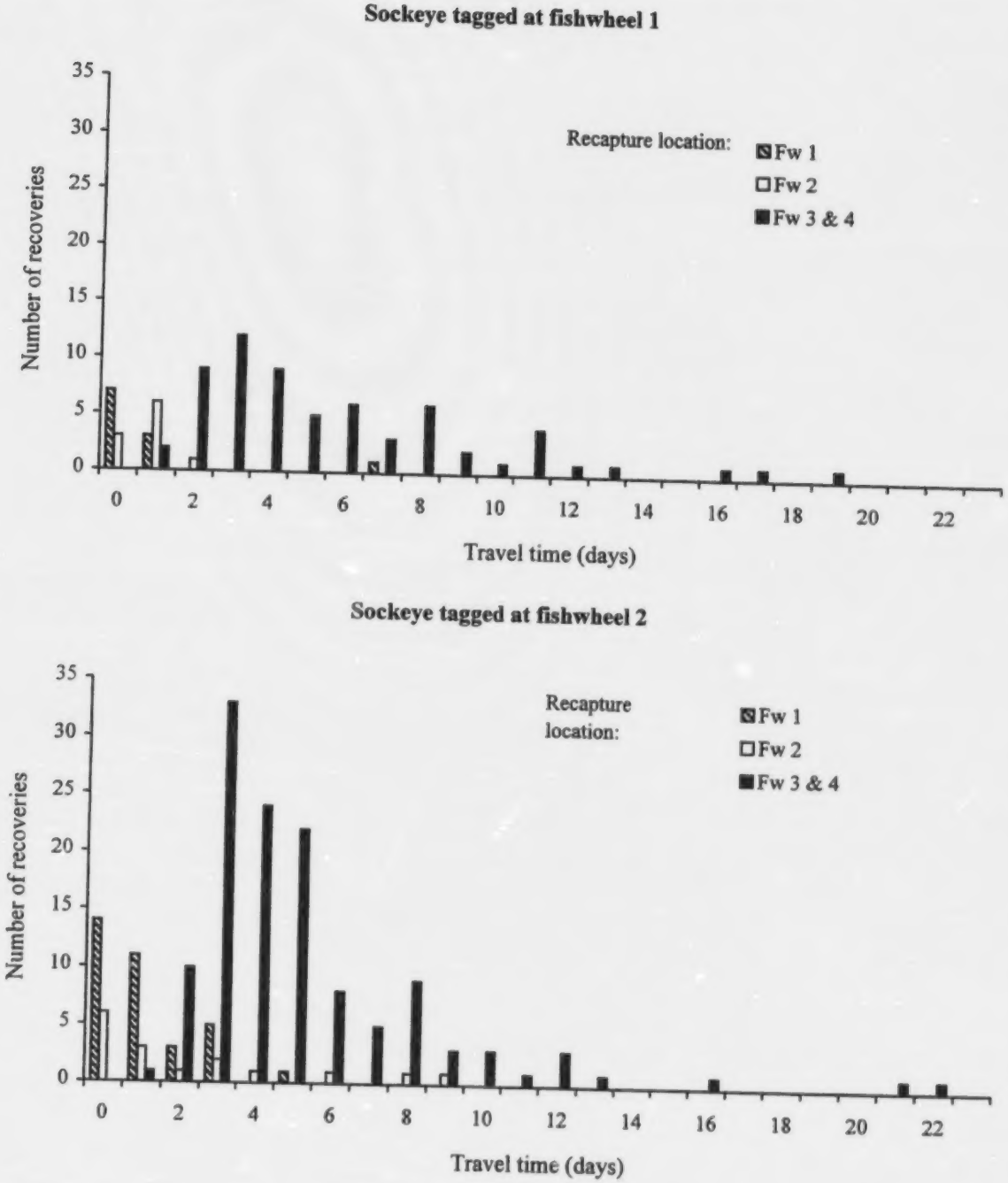


Figure 10. Time between release and recapture for sockeye salmon tagged at fishwheels 1 and 2 and subsequently recaptured in each of the four fishwheels, 1998. Fishwheel 3 and 4 were pooled for clarity.

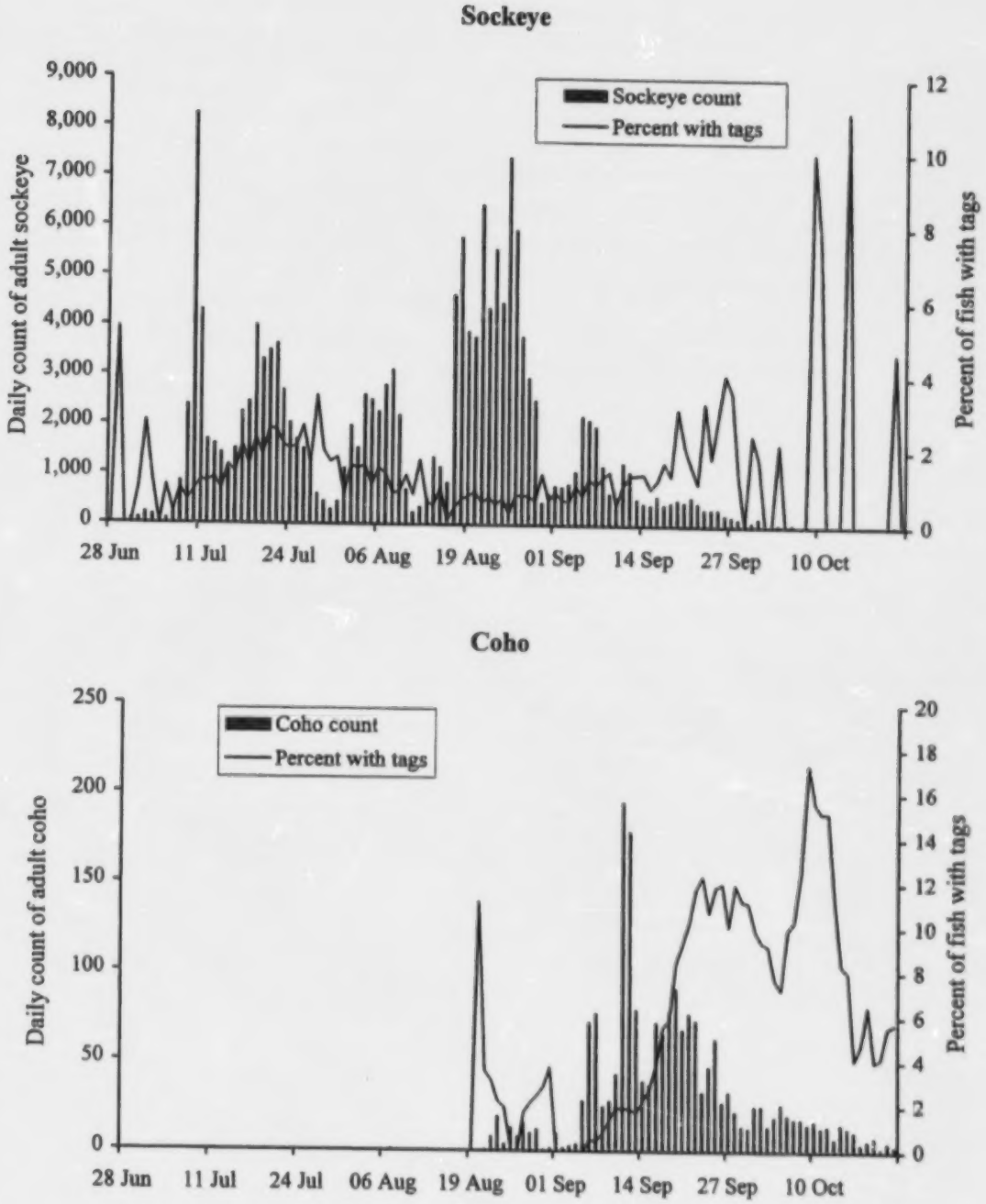


Figure 11. Daily counts and percent of fish with tags for sockeye and coho salmon passing through the Meziadin fishway, 1998. A running 5-day average was used for the percent of coho salmon with tags.

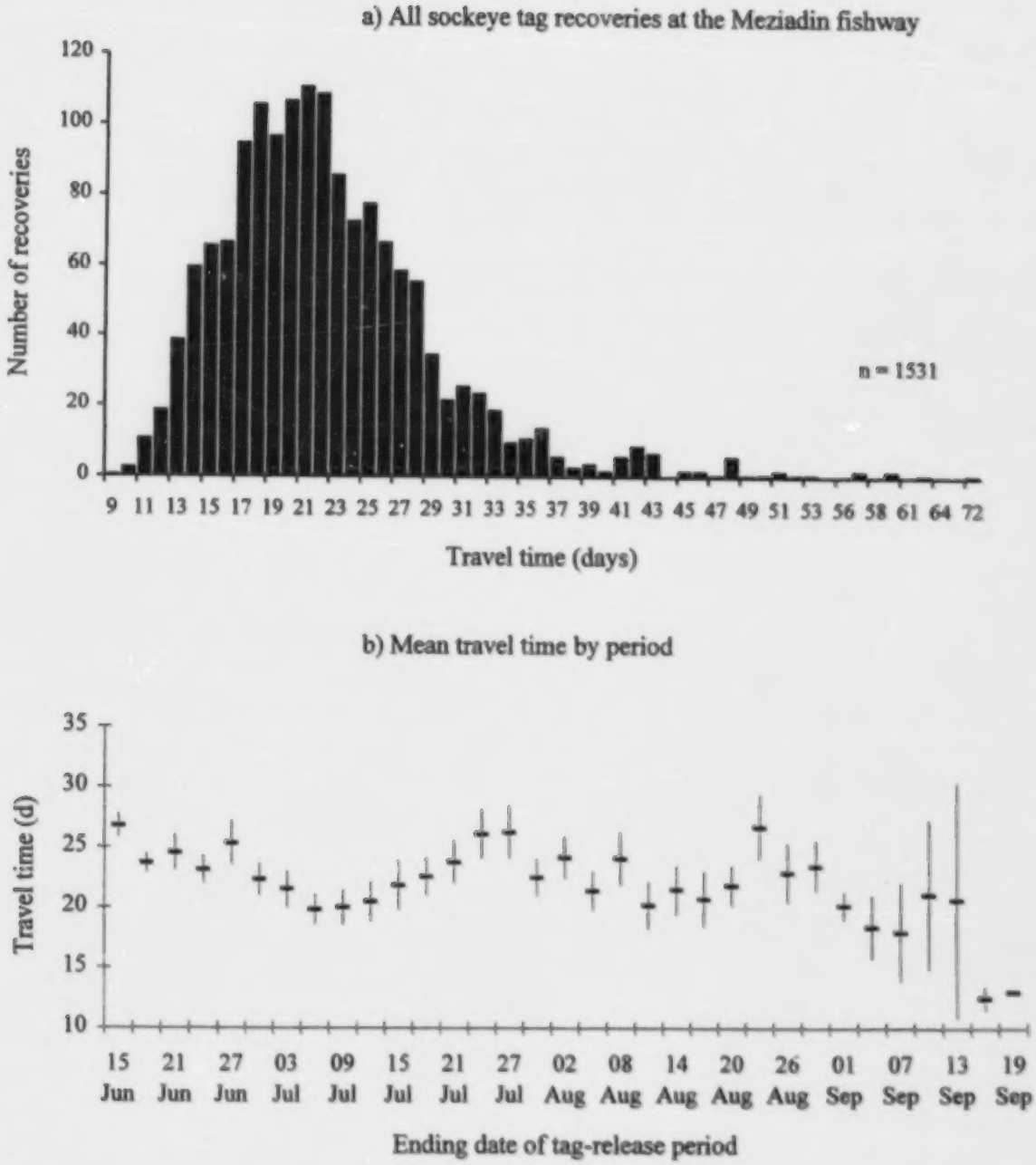


Figure 12. a) The distribution of travel times (days) to the Meziadin fishway for sockeye salmon tagged at the Nass River fishwheels and recovered at the Meziadin fishway, 1998. b) Mean travel time (with 95% confidence intervals) for 3-day release periods.

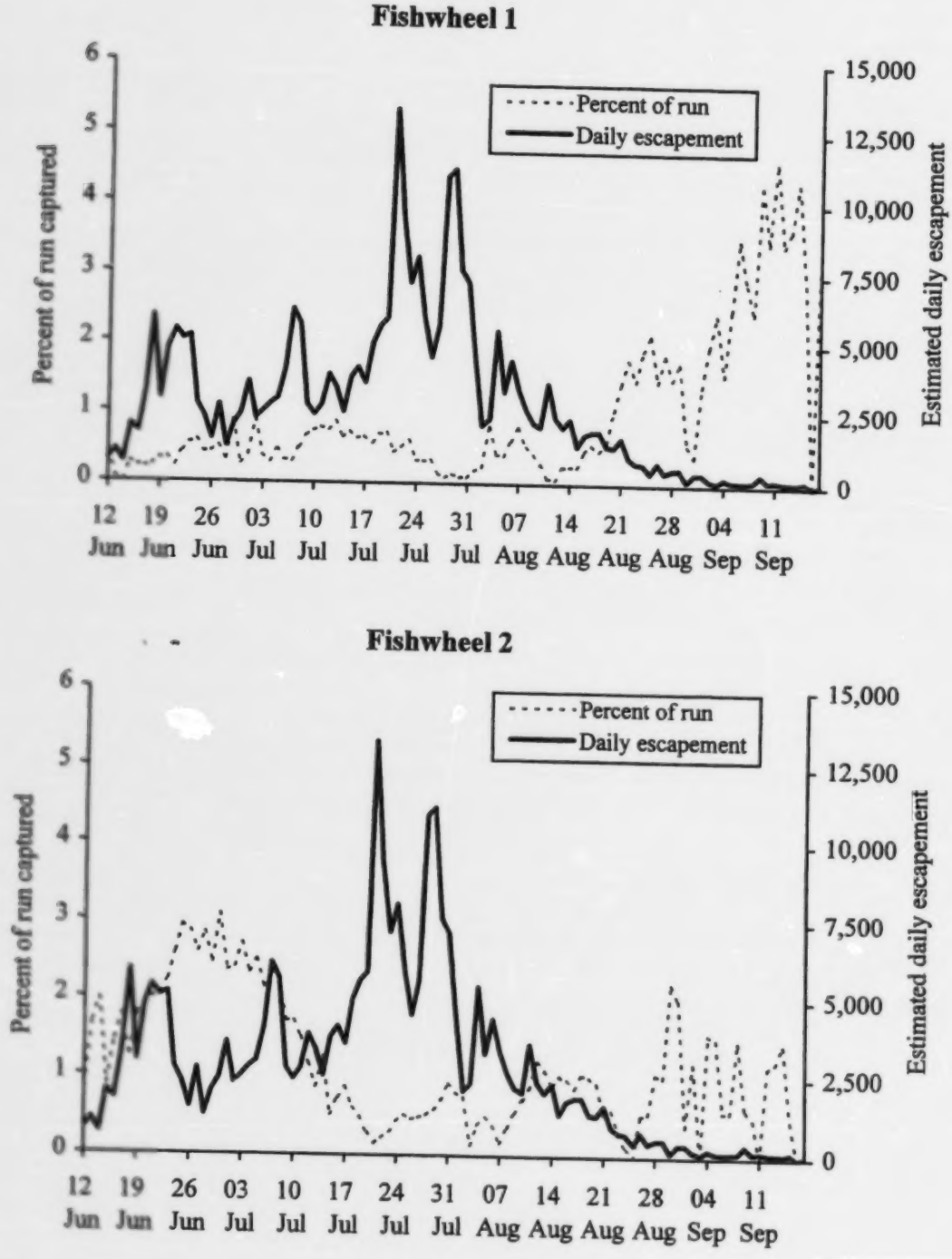


Figure 13. Percent of the sockeye salmon run captured by fishwheels 1 and 2 versus estimated daily escapement, 1998.

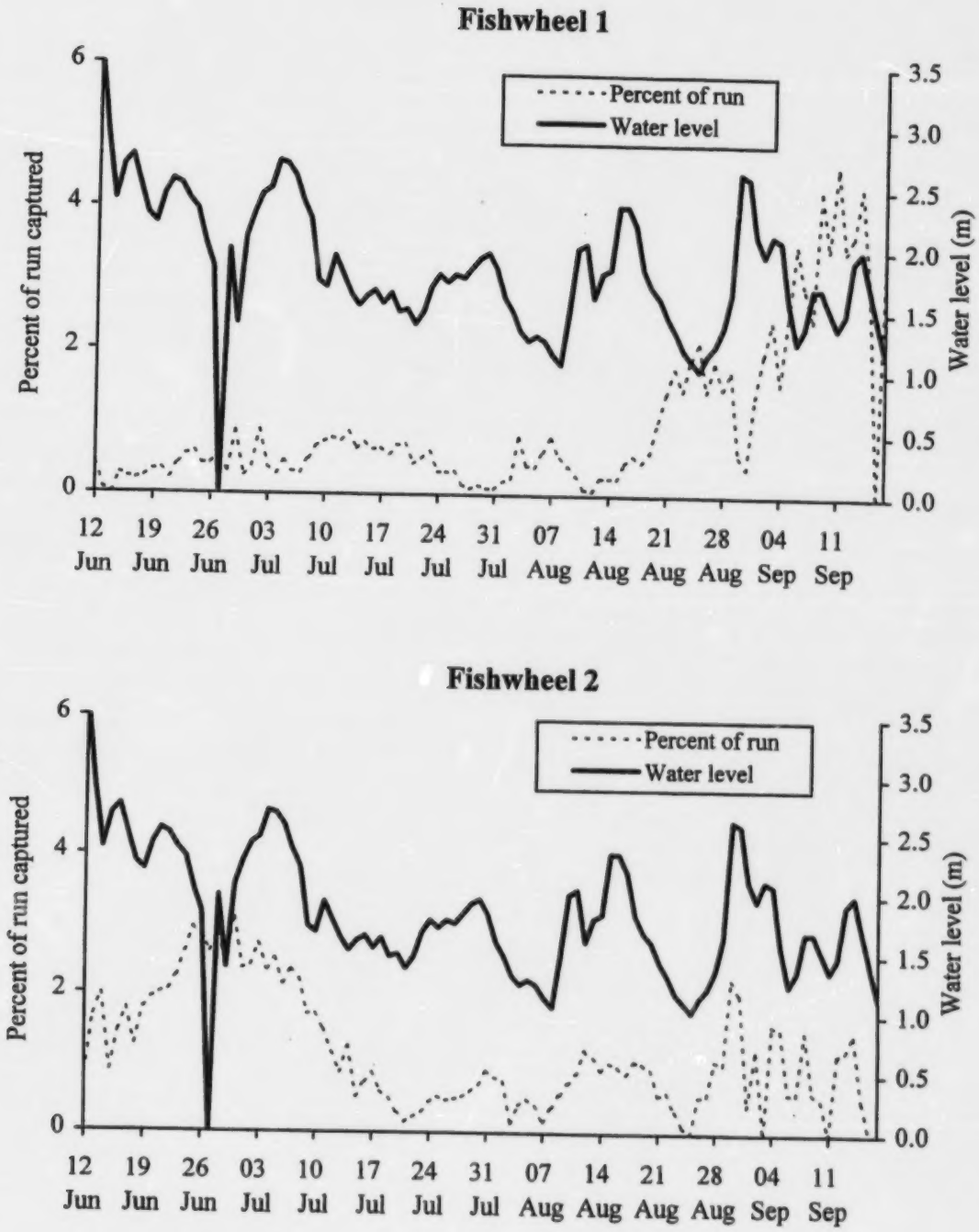


Figure 14. Percent of the sockeye salmon run captured by fishwheels 1 and 2 versus level of the Nass River at Gitwinksihlkw, 1998.

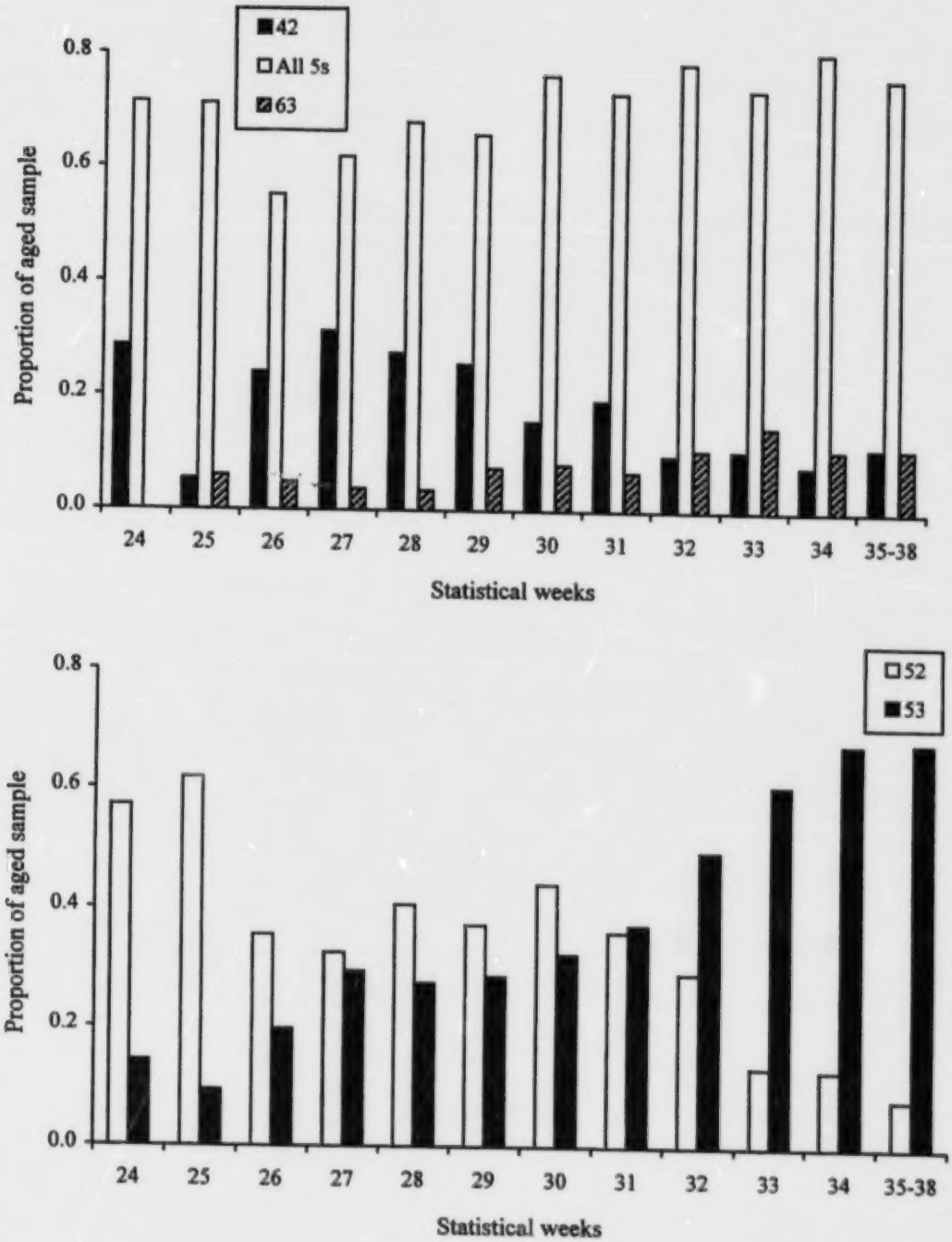
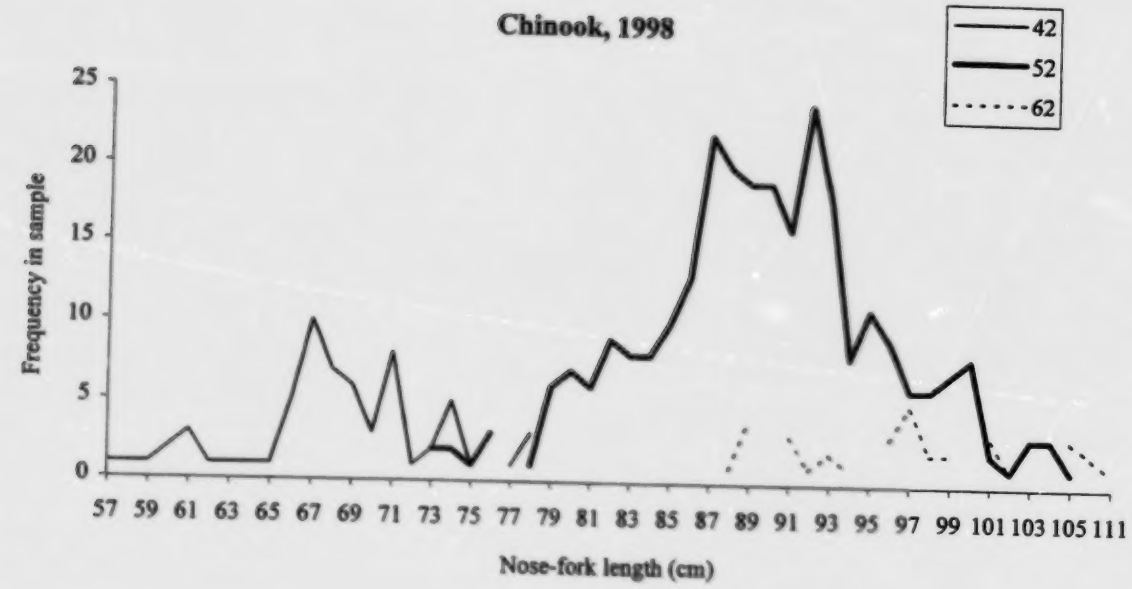


Figure 15. Weekly age composition of successfully aged sockeye salmon sampled from the Nass River fishwheel catch, 1998 (most common ages only, top: the aged-five fish were pooled for clarity).



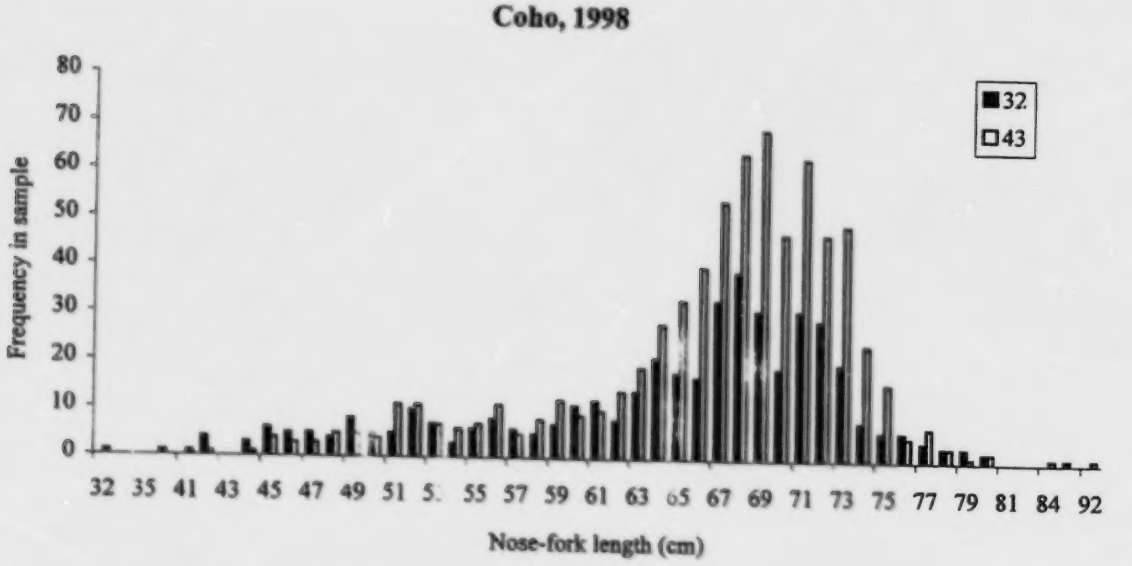


Figure 16. Age-length frequencies for chinook and coho salmon (by age) sampled at the Nass River fishwheels, 1998. Only the most common age classes are shown for clarity, see Table E-1 and E-5 for more detailed composition.

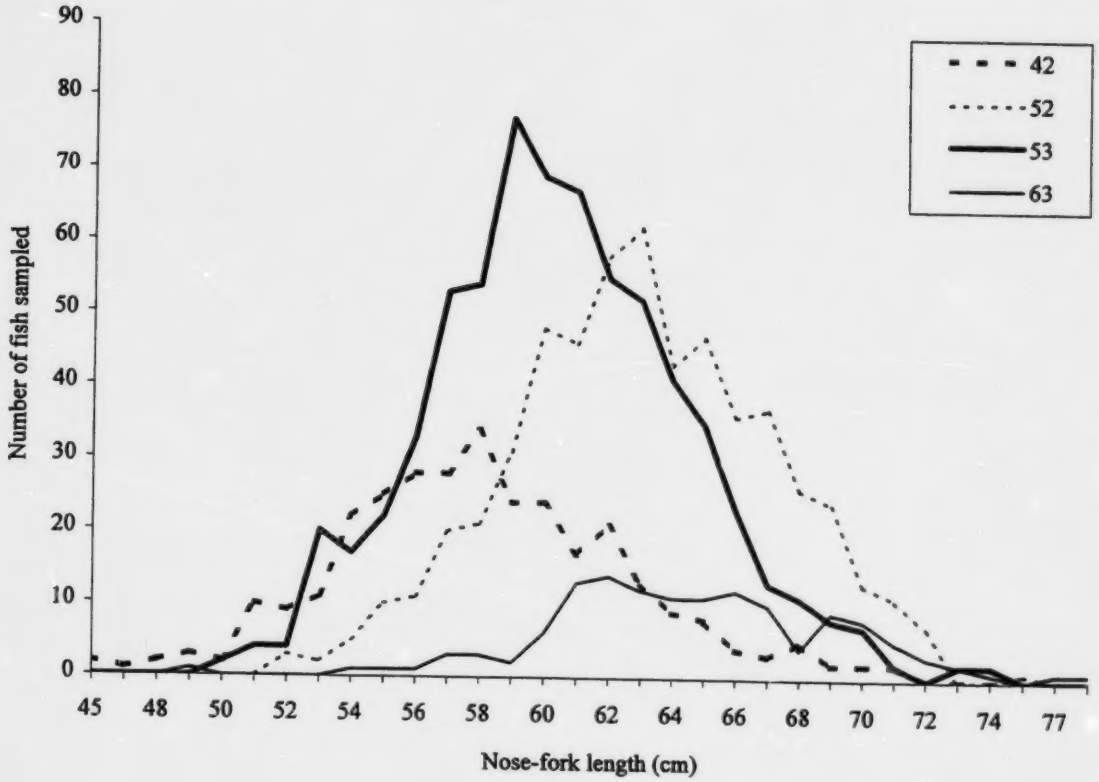


Figure 17. Age-length distributions for sockeye salmon sampled at the Nass River fishwheels, 1998.

APPENDIX A

Water temperature/level data and fishwheel effort, 1998

Table A-1. Minimum and maximum water level and temperature data collected in the Nass River near Gitwinksihlkw, 12 June to 12 October 1998.

Date	Depth (m)		Temp. (°C)		Date	Depth (m)		Temp. (°C)		Date	Depth (m)		Temp. (°C)	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
12-Jun	2.9	3.6	9.2	10.0	23-Jul		1.7			02-Sep	1.9	2.0	7.1	7.1
13-Jun	2.4	2.9	8.0	9.2	24-Jul		1.8			03-Sep	1.9	2.1	7.1	7.1
14-Jun	2.2	2.4	7.5	8.0	25-Jul		1.7			04-Sep	1.6	2.1	6.7	7.1
15-Jun	2.2	2.7	7.3	7.5	26-Jul		1.8			05-Sep	1.2	1.6	6.7	6.7
16-Jun	2.5	2.8	7.5	8.0	27-Jul	1.7	1.8	6.5	6.5	06-Sep	1.1	1.3	6.7	6.7
17-Jun	2.2	2.5	7.3	7.8	28-Jul	1.7	1.8	6.5	6.7	07-Sep	1.1	1.4	6.7	6.7
18-Jun	2.1	2.3	7.1	7.3	29-Jul	1.8	1.9	6.5	6.9	08-Sep	1.4	1.7	6.7	6.9
19-Jun	2.1	2.2	7.1	7.1	30-Jul	1.8	2.0	6.9	6.9	09-Sep	1.5	1.7	6.9	6.9
20-Jun	2.2	2.4	7.1	7.5	31-Jul	1.6	1.8	6.5	6.9	10-Sep	1.4	1.5	6.7	6.9
21-Jun	2.4	2.6	7.5	9.4	01-Aug	1.5	1.6	6.3	6.5	11-Sep	1.2	1.4	6.7	6.7
22-Jun	2.4	2.5	9.4	9.8	02-Aug	1.3	1.5	6.3	6.3	12-Sep	1.3	1.5	6.7	6.7
23-Jun	2.3	2.4	9.4	9.6	03-Aug	1.2	1.3	6.3	6.3	13-Sep	1.5	1.9	6.7	6.7
24-Jun	2.0	2.3	8.4	9.4	04-Aug	1.2	1.3	6.3	6.3	14-Sep	1.7	2.0	6.7	6.7
25-Jun	1.8	2.0	7.1	8.4	05-Aug	1.2	1.3	6.3	6.3	15-Sep	1.4	1.7	6.7	6.7
26-Jun	1.8	1.8	6.9	7.1	06-Aug	1.1	1.3	6.3	6.5	16-Sep	1.1	1.4	6.7	6.7
27-Jun					07-Aug	1.0	1.1	6.5	6.5	17-Sep	0.9	1.1	6.7	6.7
28-Jun		2.0			08-Aug	1.0	1.1	6.5	6.5	18-Sep	0.8	0.9	6.7	6.7
29-Jun		1.4			09-Aug	1.0	1.5	6.5	6.7	19-Sep	0.7	0.8	6.7	6.7
30-Jun		2.1			10-Aug	1.5	2.0	6.7	7.1	20-Sep	0.6	0.7	6.7	6.7
01-Jul		2.3			11-Aug	1.6	2.0	6.9	7.3	21-Sep	0.6	0.6	6.7	6.7
02-Jul		2.4			12-Aug	1.5	1.6	7.1	7.3	22-Sep	0.5	0.6	6.7	6.7
03-Jul		2.5			13-Aug	1.5	1.8	7.1	7.1	23-Sep	0.5	0.6	6.7	6.7
04-Jul		2.7			14-Aug	1.7	1.8	7.1	7.1	24-Sep	0.4	0.5	6.7	6.7
05-Jul		2.7			15-Aug	1.8	2.4	6.9	7.1	25-Sep	0.4	0.5	6.7	6.7
06-Jul		2.6			16-Aug	2.2	2.4	6.9	6.9	26-Sep	0.4	0.5	6.7	6.9
07-Jul		2.4			17-Aug	1.8	2.2	6.5	6.9	27-Sep	0.4	0.5	6.7	6.9
08-Jul		2.2			18-Aug	1.7	1.8	6.5	6.5	28-Sep	0.5	0.7	6.9	6.9
09-Jul		1.7			19-Aug	1.6	1.7	6.3	6.5	29-Sep	0.5	0.7	6.9	6.9
10-Jul		1.7			20-Aug	1.4	1.6	6.3	6.5	30-Sep	0.4	0.5	6.7	6.9
11-Jul		1.9			21-Aug	1.3	1.5	6.5	6.5	01-Oct	0.4	0.9	6.7	6.9
12-Jul		1.8			22-Aug	1.2	1.3	6.5	6.5	02-Oct	0.9	1.5	6.9	7.3
13-Jul		1.6			23-Aug	1.1	1.2	6.5	6.5	03-Oct	1.0	1.5	7.3	7.5
14-Jul		1.5			24-Aug	1.0	1.1	6.5	6.7	04-Oct	0.8	1.0	6.9	7.3
15-Jul		1.6			25-Aug	1.0	1.0	6.7	6.7	05-Oct	0.7	0.8	6.9	6.9
16-Jul		1.7			26-Aug	1.0	1.1	6.7	6.9	06-Oct	0.7	1.4	6.9	6.9
17-Jul		1.6			27-Aug	1.1	1.2	6.7	6.9	07-Oct	1.4	1.7	6.9	6.9
18-Jul		1.6			28-Aug	1.2	1.4	6.9	6.9	08-Oct	1.2	1.5	6.7	6.9
19-Jul		1.5			29-Aug	1.3	1.7	6.7	6.9	09-Oct	1.0	1.2	6.7	6.7
20-Jul		1.5			30-Aug	1.6	2.6	6.7	7.1	10-Oct	0.9	1.0	6.7	6.7
21-Jul		1.4			31-Aug	2.1	2.6	7.1	7.5	11-Oct	0.7	0.9	6.7	6.7
22-Jul		1.5			01-Sep	1.9	2.1	7.1	7.5	12-Oct	0.6	0.7	6.7	6.7

Table A-2. Summary of daily fishwheel effort (hours), effort used to calculate CPUE and fishwheel speed (RPM) for four fishwheels operated on the Nass River, 1998.

Date	Fishwheel 1			Fishwheel 2			Fishwheel 3			Fishwheel 4		
	Total (h)	CPUE (h)	PM	Total (h)	CPUE (h)	RPM	Total (h)	CPUE (h)	RPM	Total (h)	CPUE (h)	RPM
12-Jun	11.7	6.6	1.9	13.5	8.0	2.0						
13-Jun	24.0	22.9	1.8	24.0	23.2	1.3						
14-Jun	23.0	23.4	1.6	24.0	24.4	1.2						
15-Jun	24.0	26.1	1.6	24.0	25.9	1.6	5.0					
16-Jun	24.0	23.7	1.6	24.0	23.8	1.4	24.0	23.6	1.7			
17-Jun	24.0	24.5	1.3	24.0	24.1	1.3	24.0	23.5	2.6			
18-Jun	23.0	23.4	1.5	24.0	24.0	1.1	24.0	24.8	2.6	4.0		
19-Jun	24.0	20.9	2.0	24.0	20.8	1.5	24.0	22.5	2.9	24.0	22.9	3.0
20-Jun	23.3	23.4	1.5	24.0	24.0	1.4	24.0	24.6	2.5	24.0	21.7	3.8
21-Jun	24.0	23.6	2.4	24.0	25.9	1.9	24.0	24.5	2.7	24.0	25.4	2.6
22-Jun	24.0	23.9	2.2	24.0	23.5	1.5	23.0	21.3	2.3	24.0	24.3	2.1
23-Jun	24.0	24.9	2.0	24.0	23.9	1.8	24.0	25.6	2.4	24.0	24.5	2.3
24-Jun	22.0	22.0	1.4	22.0	22.7	1.1	23.0	23.1	2.4	20.0	19.6	2.3
25-Jun	24.0	23.5	1.7	22.0	21.5	1.1	24.0	21.4	2.1	23.0	21.1	2.0
26-Jun	24.0	24.1	1.8	24.0	24.0	1.3	24.0	26.2	2.0	24.0	25.4	1.9
27-Jun	24.0	24.3	2.3	24.0	23.8	1.4	24.0	23.9	2.4	24.0	23.8	2.4
28-Jun	24.0	22.7	2.3	24.0	23.9	1.3	24.0	23.8	2.3	24.0	24.6	2.4
29-Jun	24.0	25.2	2.4	24.0	24.2	1.3	23.5	23.9	2.4	24.0	23.6	2.3
30-Jun	24.0	23.6	2.5	24.0	24.4	1.2	24.0	23.6	2.3	24.0	24.3	2.4
01-Jul	24.0	23.8	2.6	24.0	23.8	1.3	24.0	23.7	2.3	24.0	23.9	2.4
02-Jul	24.0	24.3	2.7	24.0	23.9	1.8	24.0	23.5	2.8	24.0	23.3	2.4
03-Jul	24.0	23.8	2.5	24.0	24.0	1.5	24.0	24.6	2.5	23.5	24.1	2.4
04-Jul	23.0	23.2	2.5	24.0	24.2	1.5	24.0	24.3	2.8	24.0	24.3	2.6
05-Jul	24.0	23.8	2.1	24.0	24.0	1.6	24.0	24.1	2.7	24.0	24.1	2.4
06-Jul	24.0	24.1	2.1	24.0	23.9	1.8	23.5	22.7	2.3	23.8	21.3	2.8
07-Jul	24.0	24.2	1.9	24.0	24.1	1.3	24.0	25.0	2.3	24.0	26.5	2.4
08-Jul	24.0	24.3	1.8	23.5	23.1	1.2	24.0	23.9	2.3	20.0	20.0	2.2
09-Jul	24.0	23.7	1.6	24.0	23.8	1.0	24.0	24.1	2.0	24.0	24.1	1.9
10-Jul	24.0	24.1	1.9	24.0	24.3	1.0	23.5	23.5	2.0	23.4	22.8	2.3
11-Jul	24.0	23.3	2.1	24.0	23.9	1.2	24.0	23.7	2.1	24.0	24.3	2.4
12-Jul	24.0	24.2	2.3	24.0	24.2	1.1	24.0	24.3	2.1	22.0	22.3	2.0
13-Jul	24.0	24.5	2.3	24.0	24.5	1.0	24.0	23.2	2.0	24.0	22.7	1.6
14-Jul	24.0	23.9	2.4	24.0	23.4	0.7	24.0	24.6	2.0	24.0	24.3	1.9
15-Jul	24.0	23.7	2.5	24.0	23.7	1.0	24.0	24.4	1.9	24.0	24.5	1.8
16-Jul	24.0	24.5	2.4	24.0	24.5	1.0	24.0	23.3	2.1	23.5	23.5	2.1
17-Jul	24.0	24.6	2.5	24.0	24.2	0.9	24.0	24.3	2.0	24.0	24.2	1.7
18-Jul	24.0	23.9	2.7	21.5	21.5	0.9	24.0	24.3	2.0	24.0	23.6	1.8
19-Jul	24.0	23.2	2.4	24.0	23.3	1.0	24.0	24.1	1.8	24.0	24.4	1.6
20-Jul	24.0	23.9	2.6	24.0	23.9	1.2	24.0	23.7	1.8	24.0	24.1	1.7
21-Jul	24.0	24.7	2.5	24.0	24.7	0.9	24.0	23.9	1.8	24.0	24.0	1.8
22-Jul	24.0	23.9	2.7	24.0	23.9	0.9	24.0	23.8	2.0	24.0	23.8	1.8
23-Jul	24.0	24.0	2.8	24.0	23.9	1.1	24.0	24.5	1.9	24.0	23.8	1.9
24-Jul	24.0	24.1	2.6	24.0	24.2	1.1	24.0	23.8	2.1	24.0	23.8	1.9
25-Jul	24.0	24.4	2.7	24.0	24.8	1.2	24.0	15.5	2.3	24.0	16.1	2.1
26-Jul	24.0	23.5	2.8	24.0	22.9	1.2	24.0	32.8	2.1	24.0	32.1	1.9
27-Jul	24.0	24.0	2.6	24.0	24.0	1.7	24.0	23.5	1.8	24.0	24.2	2.2
28-Jul	24.0	24.2	2.7	24.0	24.4	1.4	24.0	24.3	2.0	24.0	24.1	2.2

Table A-2. Summary of daily fishwheel effort (hours), effort used to calculate CPUE and fishwheel speed (RPM) for four fishwheels operated on the Nass River, 1998.

Date	Fishwheel 1			Fishwheel 2			Fishwheel 3			Fishwheel 4		
	Total (h)	CPUE (h)	PM	Total (h)	CPUE (h)	RPM	Total (h)	CPUE (h)	RPM	Total (h)	CPUE (h)	RPM
29-Jul	24.0	23.6	2.8	24.0	24.1	1.5	24.0	24.0	2.3	24.0	24.0	2.4
30-Jul	24.0	24.4	2.8	24.0	23.6	1.1	24.0	23.9	2.2	24.0	23.9	2.2
31-Jul	24.0	23.9	2.7	24.0	24.0	1.2	24.0	23.8	1.9	24.0	23.8	1.6
01-Aug	24.0	23.8	2.7	24.0	23.8	0.8	22.0	22.4	1.8	22.0	22.4	1.8
02-Aug	24.0	24.4	2.6	24.0	24.3	0.9	22.0	22.0	1.7	22.0	22.1	1.7
03-Aug	24.0	22.9	2.5	12.0	11.7	0.6	24.0	24.3	1.6	21.0	20.5	1.7
04-Aug	24.0	27.6	3.0	24.0	26.1	1.3	24.0	24.2	1.8	24.0	24.1	1.9
05-Aug	23.8	21.1	3.0	24.0	21.9	0.8	24.0	23.6	1.7	24.0	24.5	1.9
06-Aug	24.0	23.8	3.0	24.0	24.0	0.8	12.0	12.5	1.9	24.0	23.9	2.0
07-Aug	24.0	24.1	3.0	20.0	20.1	0.7	20.0	19.8	1.7	24.0	23.8	2.2
08-Aug	24.0	24.5	3.1	24.0	24.6	0.7	12.0	10.3	1.6	24.0	23.4	2.3
09-Aug	24.0	23.2	2.4	24.0	23.9	1.7	24.0	24.9	2.4	24.0	24.6	2.2
10-Aug	24.0	23.7	2.9	24.0	23.8	1.1	24.0	24.4	2.4	22.0	21.8	2.2
11-Aug	24.0	24.6	2.8	24.0	23.9	1.3	22.0	21.8	2.0	22.0	22.4	1.8
12-Aug	24.0	23.9	2.8	24.0	23.8	1.1	22.0	22.0	2.1	24.0	24.0	1.7
13-Aug	24.0	24.3	3.0	24.0	24.2	1.4	24.0	24.3	2.1	24.0	23.6	2.1
14-Aug	24.0	23.7	3.1	24.0	23.9	1.2	13.5	24.3	2.4	24.0	24.7	2.1
15-Aug	24.0	21.8	3.4	24.0	22.6	1.1	0.0	0.0		24.0	23.7	2.3
16-Aug	24.0	27.3	2.9	24.0	27.5	1.0	0.0	0.0		24.0	26.9	2.3
17-Aug	24.0	24.8	2.6	24.0	24.8	2.0	0.0	0.0		24.0	22.9	2.1
18-Aug	24.0	22.1	2.7	24.0	21.6	1.0	18.1	12.1	2.2	24.0	22.7	1.9
19-Aug	24.0	24.0	2.7	24.0	24.0	1.0	24.0	24.0	2.1	24.0	24.1	1.7
20-Aug	24.0	24.1	2.6	24.0	24.2	0.8	24.0	24.1	2.0	24.0	23.9	1.7
21-Aug	24.0	23.7	2.7	24.0	23.7	0.7	24.0	24.1	1.7	24.0	23.4	1.7
22-Aug	22.0	22.1	2.8	24.0	23.9	0.7	24.0	23.8	1.7	12.0	11.8	2.6
23-Aug	24.0	24.2	2.9	12.0	11.9	0.8	12.0	12.1	1.7	24.0	24.8	2.3
24-Aug	24.0	24.3	3.1	24.0	24.0	0.7	24.0	24.0	1.5	22.0	22.1	2.4
25-Aug	24.0	23.4	3.1	24.0	24.0	0.6	24.0	23.8	1.7	23.0	22.7	2.2
26-Aug	24.0	24.5	3.0	22.0	21.7	0.7	24.0	23.9	1.7	24.0	23.8	1.9
27-Aug	24.0	23.2	3.0	24.0	24.1	0.7	24.0	24.1	1.8	24.0	24.1	1.9
28-Aug	24.0	24.2	2.9	24.0	24.1	0.7	24.0	23.5	1.7	24.0	23.9	1.7
29-Aug	24.0	24.2	3.3	24.0	25.3	0.9	24.0	21.9	2.0	24.0	21.9	2.2
30-Aug	24.0	24.3	2.5	24.0	22.9	1.4	24.0	19.2		17.5	19.2	2.4
31-Aug	24.0	24.0	2.5	20.0	19.9	0.7	18.1	25.7	2.0	8.7	8.7	2.4
01-Sep	24.0	23.8	2.4	23.0	20.1	0.5	24.0	23.7	2.5	24.0	24.3	2.3
02-Sep	24.0	24.3	2.4	24.0	26.2	0.9	24.0	23.9	2.3	24.0	24.4	2.6
03-Sep	24.0	23.6	2.4	24.0	24.8	2.0	24.0	24.1	2.3	23.0	23.2	2.3
04-Sep	24.0	23.5	2.3	24.0	23.5	0.7	24.0	24.0	2.0	24.0	23.8	2.0
05-Sep	24.0	21.7	2.1	24.0	21.6	0.5	24.0	22.9	1.9	24.0	23.1	2.0
06-Sep	20.0	23.6	3.5	24.0	27.1	0.9	24.0	23.8	1.6	12.0	11.5	2.4
07-Sep	24.0	20.6	3.7	24.0	20.2	0.8	24.0	24.2	1.9	24.0	25.6	2.1
08-Sep	20.0	20.3	2.6	24.0	24.6	1.8	24.0	24.1	2.1	24.0	23.8	2.5
09-Sep	24.0	23.0	2.1	24.0	23.2	1.5	20.0	20.8	2.2	24.0	23.9	1.9
10-Sep	24.0	24.2	2.4	24.0	24.2	1.0	24.0	24.1	2.0	24.0	24.1	2.1
11-Sep	24.0	23.6	2.4	24.0	24.0	0.5	24.0	24.3	1.9	24.0	24.3	1.5
12-Sep	24.0	24.3	2.4	24.0	24.0	0.8	24.0	24.0	2.1	24.0	24.0	2.2
13-Sep	24.0	24.0	2.4	24.0	24.5	1.4	24.0	23.9	2.3	24.0	23.8	2.4

Table A-2. Summary of daily fishwheel effort (hours), effort used to calculate CPUE and fishwheel speed (RPM) for four fishwheels operated on the Nass River, 1998.

Date	Fishwheel 1			Fishwheel 2			Fishwheel 3			Fishwheel 4		
	Total (h)	CPUE (h)	PM	Total (h)	CPUE (h)	RPM	Total (h)	CPUE (h)	RPM	Total (h)	CPUE (h)	RPM
14-Sep	24.0	23.7	2.5	24.0	23.3	1.3	24.0	23.9	2.4	24.0	24.0	1.9
15-Sep	24.0	27.2	2.1	20.0	23.6	1.0	24.0	23.0	1.7	24.0	22.8	2.2
16-Sep	24.0	21.4	2.3	24.0	20.8	0.6	24.0	25.2	1.7	12.0	13.1	1.8
17-Sep	12.1	21.1		24.0	21.9	0.6	12.0	12.0	1.7	24.0	24.0	1.3
18-Sep				12.0	15.5	0.7	24.0	23.4	1.6	12.0	11.4	1.5
19-Sep				24.0	22.9	0.6	12.0	11.7	1.3	24.0	24.0	1.4
20-Sep				15.7	24.9		24.0	23.9	1.1	24.0	23.6	1.8
21-Sep							24.0	23.0	1.0	24.0	22.9	0.9
22-Sep							24.0	24.7	1.0	24.0	24.7	0.9
23-Sep							24.0	25.2	1.0	24.0	25.3	1.0
24-Sep							24.0	24.2	0.8	24.0	24.0	1.0
25-Sep							24.0	22.2	1.0	24.0	22.3	1.0
26-Sep							24.0	26.0	0.8	24.0	20.9	0.8
27-Sep							24.0	23.9	1.0	24.0	29.0	1.0
28-Sep							24.0	24.1	1.0	24.0	24.1	1.2
29-Sep							24.0	22.4	1.0	24.0	22.5	1.0
30-Sep							24.0	24.9	1.0	24.0	24.8	1.0
01-Oct							24.0	22.9	1.7	24.0	22.9	1.6
02-Oct							24.0	24.3	2.0	24.0	24.3	1.5
03-Oct							24.0	24.1	1.4	24.0	23.4	1.5
04-Oct							24.0	16.3	1.6	24.0	17.0	1.5
05-Oct							14.1	24.3		24.0	31.6	1.3
06-Oct										24.0	23.6	1.6
07-Oct										24.0	24.8	1.0
08-Oct										24.0	24.9	
09-Oct										24.0	23.0	1.1
10-Oct										24.0	24.0	1.0
11-Oct										24.0	24.0	1.5
12-Oct										24.0	22.1	1.0
13-Oct										16.2	25.1	1.1
Totals	2311.8	2311.8		2347.2	2347.2		2509.2	2509.2		2706.5	2706.5	

Total hours of effort all fishwheels combined: 9874.7

Total number of days operated, all fishwheels: 430

Overall percent operational while fishing: 95.7%

Total number of days operated by fishwheel:

98	101	113	118

Percent operational:

98%	97%	93%	96%

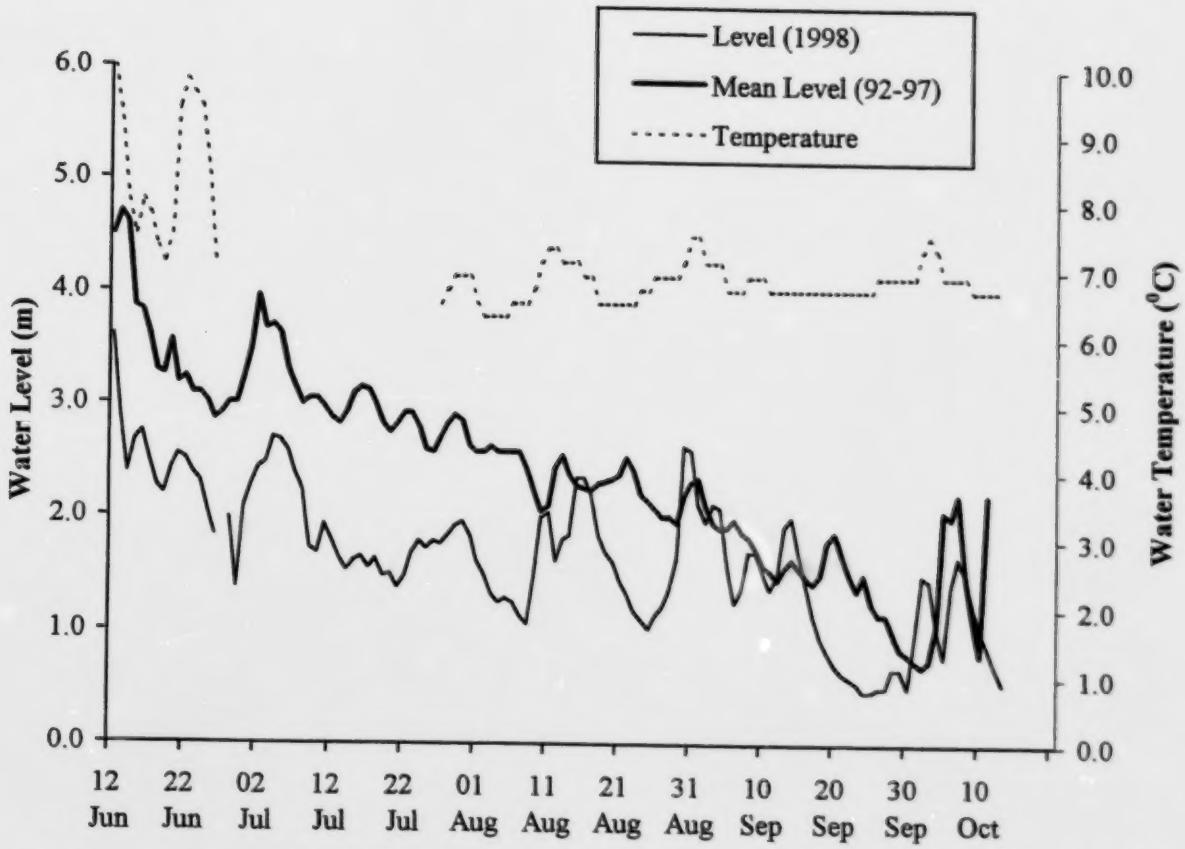


Figure A-1. Daily maximum water temperature and level in the Nass River near Gitwinksihlkw, 1998.

APPENDIX B

Daily catches at the Nass River fishwheels, 1998

Table B-1. Daily catches, numbers of fish tagged and CPUE (adult catch per hour) for chinook salmon captured in the Nass River fishwheels, 1998.

	Fishwheel 1						Fishwheel 2						Fishwheel 3						Fishwheel 4					
Date	Adults	Cum.	Tagged	Jacks	Cum.	CPUE	Adults	Cum.	Tagged	Jacks	Cum.	CPUE	Adults	Cum.	Tagged	Jacks	Cum.	CPUE	Adults	Cum.	Tagged	Jacks	Cum.	CPUE
12-Jun	1	1	1	0	0	0.15	1	1	1	0	0	0.13												
13-Jun	0	1	0	0	0	0.00	10	11	10	0	0	0.43												
14-Jun	3	4	3	0	0	0.13	22	33	22	0	0	0.90												
15-Jun	3	7	3	0	0	0.12	17	50	14	0	0	0.66	0	0	0	0	0							
16-Jun	2	9	1	0	0	0.08	18	68	15	0	0	0.76	1	1	1	0	0	0.04						
17-Jun	20	29	20	0	0	0.82	65	133	55	1	1	2.69	2	3	1	0	0	0.09						
18-Jun	53	82	49	4	4	2.27	124	257	114	0	1	5.17	19	22	16	0	0	0.77	0	0	0	0	0	
19-Jun	66	148	25	4	8	3.16	137	394	95	1	2	6.58	87	109	76	0	0	3.86	55	55	43	2	2	2.41
20-Jun	35	183	19	5	13	1.49	67	461	38	5	7	2.80	51	160	47	2	2	2.08	28	83	4	0	2	1.29
21-Jun	8	191	6	0	13	0.34	52	513	26	2	9	2.01	36	196	30	5	7	1.47	10	93	10	0	2	0.39
22-Jun	4	195	2	3	16	0.17	34	547	33	4	13	1.45	104	300	95	0	7	4.88	23	116	8	1	3	0.95
23-Jun	3	198	3	2	18	0.12	58	605	42	1	14	2.43	191	491	14	2	9	7.48	43	159	8	1	4	1.75
24-Jun	10	208	9	2	20	0.45	19	624	16	5	19	0.84	43	534	10	0	9	1.86	13	172	3	2	6	0.66
25-Jun	28	236	27	4	24	1.19	16	640	16	4	23	0.75	125	659	33	2	11	5.84	29	201	3	2	8	1.37
26-Jun	26	262	19	4	28	1.08	36	676	25	6	29	1.50	153	812	26	4	15	5.83	57	258	10	0	8	2.24
27-Jun	12	274	10	14	42	0.49	31	707	28	6	35	1.30	98	910	27	3	18	4.09	49	307	12	3	11	2.06
28-Jun	5	279	5	1	43	0.22	23	730	22	3	38	0.96	30	940	9	5	23	1.26	27	334	11	3	14	1.10
29-Jun	8	287	7	7	50	0.32	16	746	15	7	45	0.66	61	1001	23	4	27	2.55	31	365	10	3	17	1.31
30-Jun	6	293	5	3	53	0.25	13	759	9	3	48	0.53	37	1038	13	3	30	1.57	25	390	6	8	25	1.03
01-Jul	0	293	0	7	60	0.00	13	772	11	7	55	0.55	14	1052	8	3	33	0.59	11	401	1	4	29	0.46
02-Jul	3	296	3	8	68	0.12	6	778	6	8	63	0.25	12	1064	2	3	36	0.51	5	406	1	1	30	0.22
03-Jul	0	296	0	4	72	0.00	5	783	4	4	67	0.21	11	1075	3	2	38	0.45	3	409	1	0	30	0.12
04-Jul	0	296	0	0	72	0.00	4	787	4	5	72	0.17	3	1078	0	1	39	0.12	3	412	0	0	30	0.12
05-Jul	1	297	1	0	72	0.04	0	787	0	0	72	0.00	3	1081	0	0	39	0.12	0	412	0	1	31	0.00
06-Jul	0	297	0	1	73	0.00	5	792	3	0	72	0.21	1	1082	1	0	39	0.04	1	413	0	1	32	0.05
07-Jul	4	301	4	1	74	0.17	12	804	12	3	75	0.50	11	1093	3	1	40	0.44	5	418	3	4	36	0.19
08-Jul	5	306	4	5	79	0.21	10	814	7	0	75	0.43	20	1113	5	5	45	0.84	8	426	4	6	42	0.40
09-Jul	5	311	5	7	86	0.21	14	828	14	11	86	0.59	24	1137	7	3	48	0.99	31	457	10	7	49	1.29
10-Jul	4	315	2	5	91	0.17	6	834	3	1	87	0.25	21	1158	9	7	55	0.89	16	473	3	14	63	0.70
11-Jul	2	317	2	3	94	0.09	5	839	4	4	91	0.21	22	1180	5	3	58	0.93	23	496	5	5	68	0.95
12-Jul	4	321	4	5	99	0.17	2	841	2	4	95	0.08	19	1199	10	4	62	0.78	6	502	3	14	82	0.27
13-Jul	3	324	3	2	101	0.12	1	842	1	1	96	0.04	6	1205	3	3	65	0.26	6	508	1	4	86	0.26
14-Jul	3	327	1	1	102	0.13	0	842	0	0	96	0.00	19	1224	3	2	67	0.77	9	517	1	5	91	0.37
15-Jul	2	329	1	2	104	0.08	0	842	0	0	96	0.00	4	1228	0	0	67	0.16	8	525	2	5	96	0.33
16-Jul	1	330	0	6	110	0.04	2	844	2	0	96	0.08	4	1232	1	1	68	0.17	10	535	1	1	97	0.43
17-Jul	1	331	1	3	113	0.04	0	844	0	0	96	0.00	5	1237	2	2	70	0.21	2	537	0	6	103	0.08
18-Jul	0	331	0	3	116	0.00	0	844	0	0	96	0.00	4	1241	1	3	73	0.16	6	543	1	2	105	0.25
19-Jul	1	332	1	2	118	0.04	1	845	1	1	97	0.04	6	1247	0	0	73	0.25	1	544	0	2	107	0.04
20-Jul	1	333	0	0	118	0.04	0	845	0	0	97	0.00	1	1248	1	1	74	0.04	8	552	3	2	109	0.33
21-Jul	1	334	1	0	118	0.04	1	846	0	1	98	0.04	4	1252	3	2	76	0.17	6	558	3	3	112	0.25
22-Jul	2	336	2	0	118	0.08	0	846	0	0	98	0.00	1	1253	1	0	76	0.04	2	560	1	3	115	0.08
23-Jul	0	336	0	0	118	0.00	2	848	1	0	98	0.08	0	1253	0	0	76	0.00	2	562	0	0	115	0.08
24-Jul	0	336	0	1	119	0.00	1	849	0	0	98	0.04	1	1254	0	1	77	0.04	3	565	0	1	116	0.13
25-Jul	0	336	0	0	119	0.00	1	850	1	0	98	0.04	0	1254	0	0	77	0.00	0	565	0	0	116	0.00

Table B-1. Daily catches, numbers of fish tagged and CPUE (adult catch per hour) for chinook salmon captured in the Nass River fishwheels, 1998.

	Fishwheel 1						Fishwheel 2						Fishwheel 3						Fishwheel 4					
Date	Adults	Cum.	Tagged	Jacks	Cum.	CPUE	Adults	Cum.	Tagged	Jacks	Cum.	CPUE	Adults	Cum.	Tagged	Jacks	Cum.	CPUE	Adults	Cum.	Tagged	Jacks	Cum.	CPUE
26-Jul	1	337	1	0	119	0.04	0	850	0	0	98	0.00	1	1255	0	0	77	0.03	1	566	0	0	116	0.03
27-Jul	0	337	0	0	119	0.00	0	850	0	0	98	0.00	1	1256	0	1	78	0.04	0	566	0	1	117	0.00
28-Jul	0	337	0	0	119	0.00	0	850	0	0	98	0.00	0	1256	0	0	78	0.00	0	566	0	0	117	0.00
29-Jul	0	337	0	3	122	0.00	1	851	1	0	98	0.04	0	1256	0	0	78	0.00	1	567	0	1	118	0.04
30-Jul	1	338	0	0	122	0.04	0	851	0	0	98	0.00	0	1256	0	0	78	0.00	1	568	0	0	118	0.04
31-Jul	0	338	0	1	123	0.00	0	851	0	0	98	0.00	0	1256	0	0	78	0.00	0	568	0	0	118	0.00
01-Aug	0	338	0	0	123	0.00	0	851	0	0	98	0.00	0	1256	0	1	79	0.00	0	568	0	0	118	0.00
02-Aug	1	339	0	1	124	0.04	1	852	0	0	98	0.04	1	1257	0	0	79	0.05	1	569	0	1	119	0.05
03-Aug	1	340	1	1	125	0.04	0	852	0	0	98	0.00	2	1259	0	0	79	0.08	1	570	0	2	121	0.05
04-Aug	1	341	0	0	125	0.04	0	852	0	0	98	0.00	0	1259	0	0	79	0.00	1	571	1	0	121	0.04
05-Aug	0	341	0	0	125	0.00	0	852	0	0	98	0.00	0	1259	0	1	80	0.00	0	571	0	0	121	0.00
06-Aug	2	343	1	0	125	0.08	0	852	0	1	99	0.00	0	1259	0	0	80	0.00	1	572	0	0	121	0.04
07-Aug	1	344	1	0	125	0.04	0	852	0	0	99	0.00	0	1259	0	0	80	0.00	0	572	0	1	122	0.00
08-Aug	1	345	1	0	125	0.04	1	853	1	0	99	0.04	0	1259	0	0	80	0.00	0	572	0	0	122	0.00
09-Aug	1	346	1	0	125	0.04	0	853	0	0	99	0.00	0	1259	0	0	80	0.00	1	573	0	0	122	0.04
10-Aug	0	346	0	0	125	0.00	1	854	1	0	99	0.04	2	1261	0	0	80	0.08	0	573	0	0	122	0.00
11-Aug	0	346	0	0	125	0.00	0	854	0	0	99	0.00	0	1261	0	0	80	0.00	0	573	0	0	122	0.00
12-Aug	0	346	0	1	126	0.00	0	854	0	0	99	0.00	0	1261	0	0	80	0.00	0	573	0	0	122	0.00
13-Aug	0	346	0	0	126	0.00	0	854	0	0	99	0.00	0	1261	0	0	80	0.00	0	573	0	0	122	0.00
14-Aug	0	346	0	0	126	0.00	0	854	0	1	100	0.00	1	1262	0	0	80	0.17	0	573	0	1	123	0.00
15-Aug	0	346	0	0	126	0.00	0	854	0	0	100	0.00	0	1262	0	0	80		0	573	0	0	123	0.00
16-Aug	0	346	0	0	126	0.00	0	854	0	0	100	0.00	0	1262	0	0	80		1	574	0	0	123	0.04
17-Aug	0	346	0	0	126	0.00	1	855	0	0	100	0.04	0	1262	0	0	80		0	574	0	0	123	0.00
18-Aug	2	348	0	0	126	0.09	0	855	0	0	100	0.00	0	1262	0	0	80	0.00	0	574	0	0	123	0.00
19-Aug	0	348	0	2	128	0.00	0	855	0	0	100	0.00	1	1263	0	0	80	0.04	0	574	0	0	123	0.00
20-Aug	0	348	0	1	129	0.00	0	855	0	0	100	0.00	0	1263	0	0	80	0.00	0	574	0	0	123	0.00
21-Aug	1	349	0	1	130	0.04	0	855	0	0	100	0.00	0	1263	0	0	80	0.00	0	574	0	0	123	0.00
22-Aug	0	349	0	0	130	0.00	0	855	0	0	100	0.00	2	1265	0	0	80	0.08	2	576	0	0	123	0.17
23-Aug	2	351	0	0	130	0.08	0	855	0	0	100	0.00	0	1265	0	0	80	0.00	0	576	0	0	123	0.00
24-Aug	0	351	0	1	131	0.00	0	855	0	0	100	0.00	0	1265	0	0	80	0.00	0	576	0	0	123	0.00
25-Aug	1	352	0	0	131	0.04	0	855	0	0	100	0.00	0	1265	0	0	80	0.00	1	577	0	0	123	0.04
26-Aug	1	353	1	0	131	0.04	0	855	0	0	100	0.00	2	1267	0	0	80	0.08	2	579	1	0	123	0.08
27-Aug	3	356	3	0	131	0.13	0	855	0	0	100	0.00	1	1268	1	0	80	0.04	0	579	0	0	123	0.00
28-Aug	1	357	1	0	131	0.04	0	855	0	0	100	0.00	0	1268	0	0	80	0.00	1	580	0	0	123	0.04
29-Aug	1	358	1	1	132	0.04	0	855	0	0	100	0.00	0	1268	0	0	80	0.00	0	580	0	0	123	0.00
30-Aug	0	358	0	0	132	0.00	1	856	1	0	100	0.04	0	1268	0	0	80	0.00	0	580	0	0	123	0.00
31-Aug	0	358	0	0	132	0.00	0	856	0	0	100	0.00	0	1268	0	0	80	0.00	0	580	0	0	123	0.00
01-Sep	0	358	0	0	132	0.00	0	856	0	0	100	0.00	0	1268	0	0	80	0.00	0	580	0	0	123	0.00
02-Sep	0	358	0	0	132	0.00	0	856	0	0	100	0.00	0	1268	0	0	80	0.00	0	580	0	0	123	0.00
03-Sep	1	359	1	0	132	0.04	1	857	1	0	100	0.04	0	1268	0	0	80	0.00	0	580	0	0	123	0.00
04-Sep	0	359	0	0	132	0.00	0	857	0	0	100	0.00	0	1268	0	1	81	0.00	0	580	0	0	123	0.00
05-Sep	0	359	0	0	132	0.00	0	857	0	0	100	0.00	0	1268	0	0	81	0.00	0	580	0	0	123	0.00
06-Sep	0	359	0	0	132	0.00	0	857	0	0	100	0.00	0	1268	0	0	81	0.00	0	580	0	0	123	0.00
07-Sep	0	359	0	0	132	0.00	0	857	0	0	100	0.00	0	1268	0	0	81	0.00	0	580	0	0	123	0.00

Table B-1. Daily catches, numbers of fish tagged and CPUE (adult catch per hour) for chinook salmon captured in the Nass River fishwheels, 1998.

	Fishwheel 1						Fishwheel 2						Fishwheel 3						Fishwheel 4					
Date	Adults	Cum.	Tagged	Jacks	Cum.	CPUE	Adults	Cum.	Tagged	Jacks	Cum.	CPUE	Adults	Cum.	Tagged	Jacks	Cum.	CPUE	Adults	Cum.	Tagged	Jacks	Cum.	CPUE
08-Sep	0	359	0	0	132	0.00	0	857	0	0	100	0.00	0	1268	0	0	81	0.00	0	580	0	0	123	0.00
09-Sep	1	360	0	0	132	0.04	1	858	0	0	100	0.04	0	1268	0	0	81	0.00	0	580	0	0	123	0.00
10-Sep	2	362	2	0	132	0.08	0	858	0	0	100	0.00	0	1268	0	0	81	0.00	0	580	0	0	123	0.00
11-Sep	0	362	0	0	132	0.00	0	858	0	0	100	0.00	0	1268	0	0	81	0.00	0	580	0	0	123	0.00
12-Sep	0	362	0	0	132	0.00	0	858	0	0	100	0.00	0	1268	0	0	81	0.00	0	580	0	0	123	0.00
13-Sep	0	362	0	0	132	0.00	0	858	0	0	100	0.00	0	1268	0	0	81	0.00	0	580	0	0	123	0.00
14-Sep	0	362	0	0	132	0.00	0	858	0	0	100	0.00	0	1268	0	0	81	0.00	1	581	0	0	123	0.04
15-Sep	0	362	0	0	132	0.00	0	858	0	0	100	0.00	0	1268	0	0	81	0.00	0	581	0	0	123	0.00
16-Sep	1	363	1	0	132	0.05	0	858	0	0	100	0.00	0	1268	0	0	81	0.00	1	582	0	0	123	0.04
17-Sep	0	363	0	0	132	0.00	0	858	0	0	100	0.00	0	1268	0	0	81	0.00	0	582	0	0	123	0.00
18-Sep	0	363	0	0	132		0	858	0	0	100	0.00	0	1268	0	0	81	0.00	0	582	0	0	123	0.00
19-Sep	0	363	0	0	132		0	858	0	0	100	0.00	0	1268	0	0	81	0.00	0	582	0	0	123	0.00
20-Sep	0	363	0	0	132		0	858	0	0	100	0.00	0	1268	0	0	81	0.00	0	582	0	0	123	0.00
21-Sep	0	363	0	0	132		0	858	0	0	100		0	1268	0	0	81	0.00	0	582	0	0	123	0.00
22-Sep	0	363	0	0	132		0	858	0	0	100		0	1268	0	0	81	0.00	0	582	0	0	123	0.00
23-Sep	0	363	0	0	132		0	858	0	0	100		0	1268	0	0	81	0.00	0	582	0	0	123	0.00
24-Sep	0	363	0	0	132		0	858	0	0	100		0	1268	0	0	81	0.00	0	582	0	0	123	0.00
25-Sep	0	363	0	0	132		0	858	0	0	100		0	1268	0	0	81	0.00	0	582	0	0	123	0.00
26-Sep	0	363	0	0	132		0	858	0	0	100		0	1268	0	0	81	0.00	0	582	0	0	123	0.00
27-Sep	0	363	0	0	132		0	858	0	0	100		0	1268	0	0	81	0.00	0	582	0	0	123	0.00
28-Sep	0	363	0	0	132		0	858	0	0	100		0	1268	0	0	81	0.00	0	582	0	0	123	0.00
29-Sep	0	363	0	0	132		0	858	0	0	100		0	1268	0	0	81	0.00	0	582	0	0	123	0.00
30-Sep	0	363	0	0	132		0	858	0	0	100		0	1268	0	0	81	0.00	0	582	0	0	123	0.00
01-Oct	0	363	0	0	132		0	858	0	0	100		0	1268	0	0	81	0.00	0	582	0	0	123	0.00
02-Oct	0	363	0	0	132		0	858	0	0	100		0	1268	0	0	81	0.00	0	582	0	0	123	0.00
03-Oct	0	363	0	0	132		0	858	0	0	100		0	1268	0	0	81	0.00	0	582	0	0	123	0.00
04-Oct	0	363	0	0	132		0	858	0	0	100		0	1268	0	0	81	0.00	0	582	0	0	123	0.00
05-Oct	0	363	0	0	132		0	858	0	0	100		0	1268	0	0	81	0.00	0	582	0	0	123	0.00
06-Oct	0	363	0	0	132		0	858	0	0	100		0	1268	0	0	81		0	582	0	0	123	0.00
07-Oct	0	363	0	0	132		0	858	0	0	100		0	1268	0	0	81		0	582	0	0	123	0.00
08-Oct	0	363	0	0	132		0	858	0	0	100		0	1268	0	0	81		0	582	0	0	123	0.00
09-Oct	0	363	0	0	132		0	858	0	0	100		0	1268	0	0	81		0	582	0	0	123	0.00
10-Oct	0	363	0	0	132		0	858	0	0	100		0	1268	0	0	81		0	582	0	0	123	0.00
11-Oct	0	363	0	0	132		0	858	0	0	100		0	1268	0	0	81		0	582	0	0	123	0.00
12-Oct	0	363	0	0	132		0	858	0	0	100		0	1268	0	0	81		0	582	0	0	123	0.00
13-Oct	0	363	0	0	132		0	858	0	0	100		0	1268	0	0	81		0	582	0	0	123	0.00
Totals	363		265	132		0.16	858		677	100		0.366	1268		490	81		0.51	582		174	123		0.22

Table B-2. Daily catches, numbers of fish tagged and CPUE (adult catch per hour) for sockeye salmon captured in the Nass River fishwheels, 1998.

Date	Fishwheel 1						Fishwheel 2						Fishwheel 3					Fishwheel 4				
	Adults	Cum.	Tagged	Jacks	Cum.	CPUE	Adults	Cum.	Tagged	Jacks	Cum.	CPUE	Adults	Cum.	Jacks	Cum.	CPUE	Adults	Cum.	Jacks	Cum.	CPUE
12-Jun	4	4	1	0	0	0.6	8	8	7	0	0	1.0	0	0	0	0		0	0	0	0	
13-Jun	1	5	1	0	0	0.0	23	31	21	1	1	1.0	0	0	0	0		0	0	0	0	
14-Jun	0	5	0	0	0	0.0	17	48	14	1	2	0.7	0	0	0	0		0	0	0	0	
15-Jun	7	12	5	0	0	0.3	22	70	20	0	2	0.8	0	0	0	0		0	0	0	0	
16-Jun	5	17	4	0	0	0.2	32	102	24	2	4	1.3	4	4	0	0	0.2	0	0	0	0	
17-Jun	8	25	5	0	0	0.3	71	173	45	3	7	2.9	21	25	0	0	0.9	0	0	0	0	
18-Jun	17	42	8	0	0	0.7	92	265	43	1	8	3.8	29	54	0	0	1.2	0	0	0	0	
19-Jun	12	54	8	0	0	0.6	66	331	41	0	8	3.2	57	111	0	0	2.5	27	27	0	0	1.2
20-Jun	20	74	13	0	0	0.9	113	444	54	4	12	4.7	107	218	0	0	4.4	61	88	0	0	2.8
21-Jun	15	89	10	0	0	0.6	134	578	68	2	14	5.2	114	332	0	0	4.7	63	151	0	0	2.5
22-Jun	27	116	11	0	0	1.1	129	707	66	3	17	5.5	108	440	0	0	5.1	60	211	0	0	2.5
23-Jun	35	151	25	0	0	1.4	144	851	62	1	18	6.0	60	500	0	0	2.3	27	238	0	0	1.1
24-Jun	20	171	5	0	0	0.9	89	940	51	0	18	3.9	113	613	0	0	4.9	13	251	0	0	0.7
25-Jun	12	183	9	0	0	0.5	84	1024	49	2	20	3.9	96	709	0	0	4.5	31	282	2	2	1.5
26-Jun	8	191	6	0	0	0.3	54	1078	26	2	22	2.3	107	816	0	0	4.1	66	348	0	2	2.6
27-Jun	17	208	16	1	1	0.7	88	1166	83	5	27	3.7	103	919	0	0	4.3	47	395	0	2	2.0
28-Jun	5	213	5	1	2	0.2	45	1211	22	5	32	1.9	81	1000	2	2	3.4	60	455	0	2	2.4
29-Jun	22	235	22	1	3	0.9	62	1273	34	1	33	2.6	54	1054	0	2	2.3	39	494	4	6	1.7
30-Jun	8	243	8	0	3	0.3	93	1366	64	0	33	3.8	57	1111	3	5	2.4	45	539	4	10	1.9
01-Jul	17	260	12	1	4	0.7	104	1470	76	3	36	4.4	83	1194	0	5	3.5	45	584	3	13	1.9
02-Jul	25	285	19	4	8	1.0	68	1538	62	5	41	2.8	106	1300	2	7	4.5	32	616	1	14	1.4
03-Jul	12	297	11	3	11	0.5	85	1623	82	6	47	3.5	65	1365	1	8	2.6	39	655	3	17	1.6
04-Jul	10	307	9	0	11	0.4	81	1704	75	1	48	3.3	39	1404	1	9	1.6	16	671	2	19	0.7
05-Jul	17	324	16	1	12	0.7	92	1796	80	7	55	3.8	53	1457	1	10	2.2	9	680	1	20	0.4
06-Jul	16	340	16	5	17	0.7	107	1903	89	6	61	4.5	40	1497	1	11	1.8	10	690	1	21	0.5
07-Jul	23	363	12	0	17	0.9	179	2082	101	8	69	7.4	142	1639	4	15	5.7	34	724	6	27	1.3
08-Jul	35	398	33	2	19	1.4	155	2237	57	5	74	6.7	148	1787	4	19	6.2	28	752	2	29	1.4
09-Jul	23	421	22	2	21	1.0	59	2296	49	1	75	2.5	130	1917	3	22	5.4	60	812	7	36	2.5
10-Jul	22	443	21	5	26	0.9	51	2347	50	6	81	2.1	118	2035	5	27	5.0	44	856	8	44	1.9
11-Jul	27	470	22	9	35	1.2	51	2398	50	3	84	2.1	88	2123	7	34	3.7	47	903	6	50	1.9
12-Jul	36	506	29	11	46	1.5	55	2453	50	4	88	2.3	87	2210	5	39	3.6	36	939	7	57	1.6
13-Jul	36	542	31	5	51	1.5	36	2489	35	1	89	1.5	100	2310	3	42	4.3	57	996	9	66	2.5
14-Jul	20	562	15	3	54	0.8	39	2528	37	2	91	1.7	76	2386	4	46	3.1	85	1081	4	70	3.5
15-Jul	34	596	33	7	61	1.4	24	2552	24	7	98	1.0	87	2473	4	50	3.6	95	1176	8	78	3.9

Table B-2. Daily catches, numbers of fish tagged and CPUE (adult catch per hour) for sockeye salmon captured in the Nass River fishwheels, 1998.

	Fishwheel 1						Fishwheel 2						Fishwheel 3					Fishwheel 4				
Date	Adults	Cum.	Tagged	Jacks	Cum.	CPUE	Adults	Cum.	Tagged	Jacks	Cum.	CPUE	Adults	Cum.	Jacks	Cum.	CPUE	Adults	Cum.	Jacks	Cum.	CPUE
16-Jul	32	628	32	8	69	1.3	37	2589	32	5	103	1.5	72	2545	7	57	3.1	61	1237	4	82	2.6
17-Jul	29	657	29	6	75	1.2	38	2627	36	1	104	1.6	82	2627	3	60	3.4	75	1312	13	95	3.1
18-Jul	35	692	33	5	80	1.5	37	2664	34	0	104	1.7	101	2728	5	65	4.2	115	1427	9	104	4.9
19-Jul	48	740	46	4	84	2.1	34	2698	27	2	106	1.5	97	2825	7	72	4.0	70	1497	3	107	2.9
20-Jul	52	792	44	8	92	2.2	21	2719	19	0	106	0.9	104	2929	7	79	4.4	99	1596	9	116	4.1
21-Jul	72	864	64	9	101	2.9	26	2745	22	0	106	1.1	100	3029	7	86	4.2	108	1704	6	122	4.5
22-Jul	59	923	50	16	117	2.5	26	2771	21	2	108	1.1	121	3150	10	96	5.1	140	1844	9	131	5.9
23-Jul	54	977	48	3	120	2.3	27	2798	24	0	108	1.1	150	3300	12	108	6.1	138	1982	6	137	5.8
24-Jul	32	1009	26	5	125	1.3	44	2842	39	1	109	1.8	125	3425	8	116	5.3	94	2076	2	139	3.9
25-Jul	23	1032	19	6	131	0.9	38	2880	35	1	110	1.5	88	3513	3	119	5.7	47	2123	5	144	2.9
26-Jul	18	1050	14	5	136	0.8	26	2906	23	1	111	1.1	228	3741	11	130	7.0	168	2291	22	166	5.2
27-Jul	10	1060	8	4	140	0.4	34	2940	30	3	114	1.4	159	3900	7	137	6.8	47	2338	12	178	1.9
28-Jul	12	1072	7	3	143	0.5	71	3011	66	6	120	2.9	152	4052	9	146	6.3	38	2376	8	186	1.6
29-Jul	19	1091	14	9	152	0.8	82	3093	76	5	125	3.4	167	4219	15	161	7.0	34	2410	8	194	1.4
30-Jul	9	1100	8	7	159	0.4	66	3159	61	6	131	2.8	172	4391	18	179	7.2	64	2474	9	203	2.7
31-Jul	8	1108	7	6	165	0.3	81	3240	71	13	144	3.4	181	4572	10	189	7.6	50	2524	14	217	2.1
01-Aug	10	1118	8	14	179	0.4	44	3284	38	11	155	1.9	174	4746	12	201	7.8	82	2606	23	240	3.7
02-Aug	6	1124	0	11	190	0.2	19	3303	0	7	162	0.8	182	4928	24	225	8.3	90	2696	18	258	4.1
03-Aug	23	1147	8	2	192	1.0	4	3307	4	1	163	0.3	99	5027	12	237	4.1	85	2781	18	276	4.1
04-Aug	28	1175	0	5	197	1.0	27	3334	0	5	168	1.0	154	5181	17	254	6.4	88	2869	28	304	3.7
05-Aug	16	1191	14	1	198	0.8	20	3354	20	3	171	0.9	142	5323	21	275	6.0	120	2989	15	319	4.9
06-Aug	33	1224	26	4	202	1.4	21	3375	15	4	175	0.9	81	5404	5	280	6.5	35	3024	10	329	1.5
07-Aug	33	1257	25	5	207	1.4	7	3382	5	0	175	0.3	101	5505	9	289	5.1	67	3091	17	346	2.8
08-Aug	17	1274	16	8	215	0.7	12	3394	10	2	177	0.5	39	5544	6	295	3.8	106	3197	16	362	4.5
09-Aug	11	1285	10	5	220	0.5	15	3409	12	6	183	0.6	64	5608	10	305	2.6	66	3263	12	374	2.7
10-Aug	7	1292	6	1	221	0.3	18	3427	17	2	185	0.8	26	5634	3	308	1.1	21	3284	5	379	1.0
11-Aug	4	1296	2	7	228	0.2	38	3465	36	2	187	1.6	66	5700	6	314	3.0	20	3304	10	389	0.9
12-Aug	2	1298	2	4	232	0.1	35	3500	34	2	189	1.5	130	5830	20	334	5.9	50	3354	8	397	2.1
13-Aug	6	1304	4	4	236	0.2	27	3527	26	2	191	1.1	105	5935	12	346	4.3	73	3427	23	420	3.1
14-Aug	7	1311	4	10	246	0.3	26	3553	21	10	201	1.1	197	6132	17	363	33.8	70	3497	25	445	2.8
15-Aug	4	1315	2	5	251	0.2	17	3570	14	2	203	0.8	5	6137	1	364		49	3546	6	451	2.1
16-Aug	10	1325	7	12	263	0.4	21	3591	17	11	214	0.8	0	6137	0	364		95	3641	42	493	3.5
17-Aug	13	1338	7	16	279	0.5	20	3611	18	6	220	0.8	0	6137	0	364		138	3779	37	530	6.0
18-Aug	11	1349	10	4	283	0.5	24	3635	20	7	227	1.1	85	6222	19	383	10.6	77	3856	15	545	3.4

Table B-2. Daily catches, numbers of fish tagged and CPUE (adult catch per hour) for sockeye salmon captured in the Nass River fishwheels, 1998.

Date	Fishwheel 1						Fishwheel 2						Fishwheel 3					Fishwheel 4				
	Adults	Cum.	Tagged	Jacks	Cum.	CPUE	Adults	Cum.	Tagged	Jacks	Cum.	CPUE	Adults	Cum.	Jacks	Cum.	CPUE	Adults	Cum.	Jacks	Cum.	CPUE
19-Aug	10	1359	8	6	289	0.4	17	3652	16	3	230	0.7	91	6313	13	396	3.8	156	4012	29	574	6.5
20-Aug	17	1376	16	7	296	0.7	15	3667	11	8	238	0.6	72	6385	10	406	3.0	48	4060	18	592	2.0
21-Aug	29	1405	23	8	304	1.2	11	3678	9	4	242	0.5	108	6493	15	421	4.5	70	4130	27	619	3.0
22-Aug	21	1426	18	7	311	1.0	7	3685	7	1	243	0.3	74	6567	14	435	3.1	38	4168	6	625	3.2
23-Aug	14	1440	12	4	315	0.6	3	3688	3	0	243	0.3	21	6588	7	442	1.7	42	4210	19	644	1.7
24-Aug	17	1457	13	7	322	0.7	1	3689	1	0	243	0.0	35	6623	12	454	1.5	58	4268	12	656	2.6
25-Aug	11	1468	11	1	323	0.5	0	3689	0	0	243	0.0	14	6637	3	457	0.6	34	4302	6	662	1.5
26-Aug	14	1482	13	8	331	0.6	5	3694	3	1	244	0.2	28	6665	6	463	1.2	43	4345	4	666	1.8
27-Aug	10	1492	7	0	331	0.4	3	3697	2	0	244	0.1	23	6688	2	465	1.0	27	4372	4	670	1.1
28-Aug	10	1502	9	3	334	0.4	7	3704	6	0	244	0.3	24	6712	5	470	1.0	45	4417	13	683	1.9
29-Aug	12	1514	10	5	339	0.5	7	3711	5	1	245	0.3	12	6724	4	474	0.5	25	4442	8	691	1.1
30-Aug	1	1515	1	0	339	0.0	4	3715	4	1	246	0.2	0	6724	0	474	0.0	3	4445	1	692	0.2
31-Aug	2	1517	1	1	340	0.1	10	3725	9	1	247	0.5	11	6735	0	474	1.2	10	4455	4	696	1.2
01-Sep	7	1524	7	8	348	0.3	2	3727	2	0	247	0.1	58	6793	1	475	2.4	33	4488	13	709	1.4
02-Sep	5	1529	2	1	349	0.2	3	3730	3	0	247	0.1	28	6821	1	476	1.2	22	4510	18	727	0.9
03-Sep	3	1532	2	3	352	0.1	0	3730	0	0	247	0.0	20	6841	2	478	0.8	15	4525	5	732	0.6
04-Sep	5	1537	4	1	353	0.2	5	3735	4	0	247	0.2	24	6865	5	483	1.0	37	4562	9	741	1.6
05-Sep	5	1542	3	4	357	0.2	3	3738	3	1	248	0.1	16	6881	1	484	0.7	35	4597	14	755	1.5
06-Sep	6	1548	4	3	360	0.3	1	3739	0	1	249	0.0	15	6896	1	485	0.6	14	4611	8	763	1.2
07-Sep	5	1553	5	1	361	0.2	1	3740	1	0	249	0.0	0	6896	0	485	0.0	19	4630	6	769	0.7
08-Sep	5	1558	4	1	362	0.2	3	3743	3	1	250	0.1	10	6906	1	486	0.4	25	4655	8	777	1.1
09-Sep	21	1579	21	2	364	0.9	3	3746	3	0	250	0.1	9	6915	4	490	0.4	18	4673	3	780	0.8
10-Sep	7	1586	6	2	366	0.3	1	3747	1	0	250	0.0	9	6924	4	494	0.4	13	4686	5	785	0.5
11-Sep	11	1597	10	2	368	0.5	0	3747	0	0	250	0.0	12	6936	4	498	0.5	12	4698	10	795	0.5
12-Sep	6	1603	5	1	369	0.2	2	3749	2	0	250	0.1	6	6942	4	502	0.3	15	4713	2	797	0.6
13-Sep	6	1609	6	1	370	0.2	2	3751	2	1	251	0.1	5	6947	5	507	0.2	12	4725	7	804	0.5
14-Sep	6	1615	4	2	372	0.3	2	3753	2	1	252	0.1	9	6956	0	507	0.4	11	4736	5	809	0.5
15-Sep	6	1621	4	3	375	0.2	1	3754	0	0	252	0.0	6	6962	0	507	0.3	12	4748	8	817	0.5
16-Sep	0	1621	0	2	377	0.0	0	3754	0	0	252	0.0	5	6967	1	508	0.2	11	4759	6	823	0.8
17-Sep	2	1623	2	0	377	0.1	0	3754	0	0	252	0.0	1	6968	0	508	0.1	3	4762	7	830	0.1
18-Sep	0	1623	0	0	377		0	3754	0	0	252	0.0	2	6970	0	508	0.1	1	4763	7	837	0.1
19-Sep	0	1623	0	0	377		0	3754	0	0	252	0.0	0	6970	0	508	0.0	10	4773	0	837	0.4
20-Sep	0	1623	0	0	377		0	3754	0	0	252	0.0	1	6971	0	508	0.0	3	4776	2	839	0.1
21-Sep	0	1623	0	0	377		0	3754	0	0	252		7	6978	0	508	0.3	4	4780	1	840	0.2

Table B-2. Daily catches, numbers of fish tagged and CPUE (adult catch per hour) for sockeye salmon captured in the Nass River fishwheels, 1998.

	Fishwheel 1						Fishwheel 2						Fishwheel 3					Fishwheel 4				
Date	Adults	Cum.	Tagged	Jacks	Cum.	CPUE	Adults	Cum.	Tagged	Jacks	Cum.	CPUE	Adults	Cum.	Jacks	Cum.	CPUE	Adults	Cum.	Jacks	Cum.	CPUE
22-Sep	0	1623	0	0	377		0	3754	0	0	252		3	6981	0	508	0.1	1	4781	0	840	0.0
23-Sep	0	1623	0	0	377		0	3754	0	0	252		3	6984	1	509	0.1	2	4783	1	841	0.1
24-Sep	0	1623	0	0	377		0	3754	0	0	252		0	6984	0	509	0.0	0	4783	0	841	0.0
25-Sep	0	1623	0	0	377		0	3754	0	0	252		1	6985	0	509	0.0	2	4785	2	843	0.1
26-Sep	0	1623	0	0	377		0	3754	0	0	252		0	6985	1	510	0.0	4	4789	0	843	0.2
27-Sep	0	1623	0	0	377		0	3754	0	0	252		3	6988	1	511	0.1	0	4789	3	846	0.0
28-Sep	0	1623	0	0	377		0	3754	0	0	252		4	6992	1	512	0.2	3	4792	1	847	0.1
29-Sep	0	1623	0	0	377		0	3754	0	0	252		1	6993	0	512	0.0	3	4795	0	847	0.1
30-Sep	0	1623	0	0	377		0	3754	0	0	252		2	6995	0	512	0.1	6	4801	0	847	0.2
01-Oct	0	1623	0	0	377		0	3754	0	0	252		0	6995	0	512	0.0	4	4805	1	848	0.2
02-Oct	0	1623	0	0	377		0	3754	0	0	252		0	6995	0	512	0.0	0	4805	1	849	0.0
03-Oct	0	1623	0	0	377		0	3754	0	0	252		0	6995	0	512	0.0	0	4805	0	849	0.0
04-Oct	0	1623	0	0	377		0	3754	0	0	252		0	6995	0	512	0.0	0	4805	0	849	0.0
05-Oct	0	1623	0	0	377		0	3754	0	0	252		0	6995	1	513	0.0	1	4806	0	849	0.0
06-Oct	0	1623	0	0	377		0	3754	0	0	252		0	6995	0	513		0	4806	0	849	0.0
07-Oct	0	1623	0	0	377		0	3754	0	0	252		0	6995	0	513		0	4806	0	849	0.0
08-Oct	0	1623	0	0	377		0	3754	0	0	252		0	6995	0	513		0	4806	0	849	0.0
09-Oct	0	1623	0	0	377		0	3754	0	0	252		0	6995	0	513		3	4809	0	849	0.1
10-Oct	0	1623	0	0	377		0	3754	0	0	252		0	6995	0	513		0	4809	0	849	0.0
11-Oct	0	1623	0	0	377		0	3754	0	0	252		0	6995	0	513		2	4811	0	849	0.1
12-Oct	0	1623	0	0	377		0	3754	0	0	252		0	6995	0	513		1	4812	0	849	0.0
13-Oct	0	1623	0	0	377		0	3754	0	0	252		0	6995	0	513		1	4813	0	849	0.0
Totals	1623		1294	377		0.7	3754		2736	252		1.6	6995		513		2.8	4813		849		1.8

Table B-3. Daily catches, numbers of fish tagged and CPUE (adult catch per hour) for coho salmon captured in the Nass River fishwheels, 1998.

Date	Fishwheel 1						Fishwheel 2						Fishwheel 3						Fishwheel 4					
	Adults	Cum.	Tagged	Jacks	Cum.	CPUE	Adults	Cum.	Tagged	Jacks	Cum.	CPUE	Adults	Cum.	Tagged	Jacks	Cum.	CPUE	Adults	Cum.	Tagged	Jacks	Cum.	CPUE
15-Jul	0	0	0	0	0	0.0	0	0	0	0	0	0.0	0	0	0	0	0	0.0	0	0	0	0	0	0.0
16-Jul	0	0	0	0	0	0.0	0	0	0	0	0	0.0	0	0	0	0	0	0.0	0	0	0	0	0	0.0
17-Jul	0	0	0	0	0	0.0	0	0	0	0	0	0.0	0	0	0	0	0	0.0	0	0	0	0	0	0.0
18-Jul	0	0	0	0	0	0.0	0	0	0	0	0	0.0	0	0	0	0	0	0.0	0	0	0	0	0	0.0
19-Jul	0	0	0	0	0	0.0	0	0	0	0	0	0.0	0	0	0	0	0	0.0	0	0	0	0	0	0.0
20-Jul	1	1	0	0	0	0.0	0	0	0	0	0	0.0	0	0	0	0	0	0.0	0	0	0	0	0	0.0
21-Jul	0	1	0	0	0	0.0	0	0	0	0	0	0.0	0	0	0	0	0	0.0	0	0	0	0	0	0.0
22-Jul	1	2	1	0	0	0.0	0	0	0	0	0	0.0	0	0	0	0	0	0.0	0	0	0	0	0	0.0
23-Jul	2	4	2	0	0	0.1	0	0	0	0	0	0.0	0	0	0	0	0	0.0	0	0	0	0	0	0.0
24-Jul	1	5	1	0	0	0.0	0	0	0	0	0	0.0	0	0	0	1	1	0.0	0	0	0	0	0	0.0
25-Jul	3	8	3	0	0	0.1	0	0	0	0	0	0.0	0	0	0	1	2	0.0	0	0	0	0	0	0.0
26-Jul	7	15	7	2	2	0.3	1	1	1	0	0	0.0	0	0	0	0	2	0.0	3	3	0	1	1	0.1
27-Jul	10	25	9	0	2	0.4	4	5	3	1	1	0.2	2	2	2	0	2	0.1	0	3	0	0	1	0.0
28-Jul	3	28	2	0	2	0.1	6	11	6	0	1	0.2	2	4	2	0	2	0.1	2	5	2	0	1	0.1
29-Jul	11	39	9	1	3	0.5	4	15	4	0	1	0.2	4	8	4	0	2	0.2	1	6	1	0	1	0.0
30-Jul	15	54	14	0	3	0.6	4	19	4	0	1	0.2	5	13	4	1	3	0.2	4	10	4	1	2	0.2
31-Jul	14	68	13	2	5	0.6	4	23	4	0	1	0.2	2	15	2	0	3	0.1	5	15	5	0	2	0.2
01-Aug	13	81	13	3	8	0.5	14	37	14	0	1	0.6	7	22	6	0	3	0.3	11	26	10	0	2	0.5
02-Aug	13	94	6	0	8	0.5	9	46	1	0	1	0.4	4	26	4	0	3	0.2	8	34	6	0	2	0.4
03-Aug	17	111	10	1	9	0.7	8	54	8	1	2	0.7	3	29	3	2	5	0.1	5	39	4	1	3	0.2
04-Aug	28	139	0	3	12	1.0	6	60	0	0	2	0.2	7	36	6	1	6	0.3	6	45	6	0	3	0.2
05-Aug	14	153	12	0	12	0.7	4	64	4	0	2	0.2	5	41	5	0	6	0.2	4	49	2	0	3	0.2
06-Aug	29	182	26	1	13	1.2	4	68	4	0	2	0.2	6	47	5	1	7	0.5	3	52	3	2	5	0.1
07-Aug	12	194	10	2	15	0.5	3	71	3	0	2	0.1	4	51	3	0	7	0.2	5	57	5	4	9	0.2
08-Aug	27	221	26	0	15	1.1	8	79	8	0	2	0.3	2	53	2	1	8	0.2	9	66	8	1	10	0.4
09-Aug	20	241	19	1	16	0.9	11	90	10	0	2	0.5	0	53	0	1	9	0.0	10	76	8	0	10	0.4
10-Aug	9	250	9	0	16	0.4	6	96	6	0	2	0.3	3	56	2	0	9	0.1	2	78	2	0	10	0.1
11-Aug	15	265	15	2	18	0.6	15	111	14	0	2	0.6	4	60	3	0	9	0.2	5	83	5	0	10	0.2
12-Aug	9	274	6	0	18	0.4	14	125	14	0	2	0.6	14	74	12	0	9	0.6	4	87	4	0	10	0.2
13-Aug	35	309	30	2	20	1.4	10	135	10	1	3	0.4	17	91	14	1	10	0.7	19	106	15	4	14	0.8
14-Aug	17	326	16	1	21	0.7	5	140	5	1	4	0.2	9	100	3	1	11	1.5	13	119	2	2	16	0.5
15-Aug	5	331	5	2	23	0.2	12	152	12	0	4	0.5	0	100	0	0	11		12	131	10	1	17	0.5
16-Aug	56	387	51	4	27	2.0	38	190	38	1	5	1.4	0	100	0	0	11		114	245	47	2	19	4.2
17-Aug	103	490	74	5	32	4.2	23	213	18	6	11	0.9	0	100	0	0	11		74	319	50	1	20	3.2
18-Aug	72	562	69	2	34	3.3	14	227	13	0	11	0.6	36	136	20	0	11	4.5	41	360	21	2	22	1.8
19-Aug	55	617	51	1	35	2.3	12	239	11	0	11	0.5	46	182	26	0	11	1.9	59	419	31	0	22	2.4

Table B-3. Daily catches, numbers of fish tagged and CPUE (adult catch per hour) for coho salmon captured in the Nass River fishwheels, 1998.

Date	Fishwheel 1						Fishwheel 2						Fishwheel 3						Fishwheel 4					
	Adults	Cum.	Tagged	Jacks	Cum.	CPUE	Adults	Cum.	Tagged	Jacks	Cum.	CPUE	Adults	Cum.	Tagged	Jacks	Cum.	CPUE	Adults	Cum.	Tagged	Jacks	Cum.	CPUE
20-Aug	105	722	93	5	40	4.4	15	254	15	0	11	0.6	44	226	31	1	12	1.8	49	468	19	1	23	2.1
21-Aug	60	782	56	0	40	2.5	20	274	20	0	11	0.8	46	272	22	0	12	1.9	59	527	27	1	24	2.5
22-Aug	48	830	42	0	40	2.2	9	283	8	0	11	0.4	23	295	17	1	13	1.0	25	552	19	0	24	2.1
23-Aug	38	868	34	1	41	1.6	4	287	4	0	11	0.3	17	312	11	0	13	1.4	31	583	24	1	25	1.2
24-Aug	38	906	35	0	41	1.6	6	293	6	0	11	0.2	18	330	15	0	13	0.7	27	610	24	0	25	1.2
25-Aug	22	928	22	0	41	0.9	1	294	1	0	11	0.0	11	341	9	0	13	0.5	46	656	32	0	25	2.0
26-Aug	33	961	30	0	41	1.3	2	296	2	0	11	0.1	18	359	13	0	13	0.8	27	683	14	2	27	1.1
27-Aug	22	983	19	0	41	0.9	3	299	3	0	11	0.1	5	364	4	0	13	0.2	23	706	17	0	27	1.0
28-Aug	35	1018	34	0	41	1.4	3	302	3	0	11	0.1	18	382	11	0	13	0.8	37	743	14	0	27	1.6
29-Aug	28	1046	27	0	41	1.2	3	305	3	0	11	0.1	5	387	5	0	13	0.2	9	752	8	0	27	0.4
30-Aug	1	1047	1	0	41	0.0	13	318	11	0	11	0.6	0	387	0	0	13	0.0	1	753	1	0	27	0.1
31-Aug	15	1062	12	0	41	0.6	19	337	17	0	11	1.0	19	406	18	0	13	2.1	7	760	7	0	27	0.8
01-Sep	23	1085	22	0	41	1.0	1	338	1	0	11	0.0	36	442	22	0	13	1.5	42	802	20	0	27	1.7
02-Sep	24	1109	18	0	41	1.0	4	342	3	0	11	0.2	22	464	13	0	13	0.9	49	851	23	1	28	2.0
03-Sep	24	1133	21	0	41	1.0	2	344	2	0	11	0.1	36	500	12	0	13	1.5	67	918	41	3	31	2.9
04-Sep	28	1161	27	0	41	1.2	7	351	6	0	11	0.3	31	531	29	0	13	1.3	66	984	17	0	31	2.8
05-Sep	27	1188	23	1	42	1.2	1	352	1	0	11	0.0	18	549	13	0	13	0.8	65	1049	30	1	32	2.8
06-Sep	16	1204	16	1	43	0.7	2	354	1	0	11	0.1	12	561	12	0	13	0.5	16	1065	12	0	32	1.4
07-Sep	6	1210	4	0	43	0.3	1	355	1	0	11	0.0	9	570	8	0	13	0.4	50	1115	21	2	34	2.0
08-Sep	11	1221	11	0	43	0.5	0	355	0	0	11	0.0	12	582	11	1	14	0.5	43	1158	15	0	34	1.8
09-Sep	13	1234	13	0	43	0.6	5	360	5	0	11	0.2	13	595	11	0	14	0.6	22	1180	14	0	34	0.9
10-Sep	25	1259	22	0	43	1.0	5	365	5	0	11	0.2	7	602	7	0	14	0.3	36	1216	18	0	34	1.5
11-Sep	21	1280	20	0	43	0.9	0	365	0	0	11	0.0	7	609	7	0	14	0.3	16	1232	14	0	34	0.7
12-Sep	6	1286	4	0	43	0.2	1	366	1	0	11	0.0	13	622	12	0	14	0.5	34	1266	13	0	34	1.4
13-Sep	16	1302	15	0	43	0.7	1	367	1	0	11	0.0	11	633	11	0	14	0.5	24	1290	14	1	35	1.0
14-Sep	10	1312	10	1	44	0.4	2	369	2	0	11	0.1	11	644	10	0	14	0.5	15	1305	15	1	36	0.6
15-Sep	10	1322	9	0	44	0.4	1	370	1	0	11	0.0	5	649	4	0	14	0.2	37	1342	21	0	36	1.6
16-Sep	2	1324	2	0	44	0.1	0	370	0	0	11	0.0	3	652	2	0	14	0.1	16	1358	14	0	36	1.2
17-Sep	1	1325	1	0	44	0.0	1	371	1	0	11	0.0	3	655	3	0	14	0.3	5	1363	5	0	36	0.2
18-Sep	0	1325	0	0	44		0	371	0	0	11	0.0	1	656	0	0	14	0.0	3	1366	3	0	36	0.3
19-Sep	0	1325	0	0	44		0	371	0	0	11	0.0	2	658	1	0	14	0.2	2	1368	2	0	36	0.1
20-Sep	0	1325	0	0	44		0	371	0	0	11	0.0	1	659	1	0	14	0.0	3	1371	3	0	36	0.1
21-Sep	0	1325	0	0	44		0	371	0	0	11		0	659	0	0	14	0.0	0	1371	0	0	36	0.0
22-Sep	0	1325	0	0	44		0	371	0	0	11		0	659	0	0	14	0.0	0	1371	0	1	37	0.0
23-Sep	0	1325	0	0	44		0	371	0	0	11		0	659	0	0	14	0.0	1	1372	1	0	37	0.0
24-Sep	0	1325	0	0	44		0	371	0	0	11		0	659	0	0	14	0.0	0	1372	0	0	37	0.0

Table B-3. Daily catches, numbers of fish tagged and CPUE (adult catch per hour) for coho salmon captured in the Nass River fishwheels, 1998.

Date	Fishwheel 1						Fishwheel 2						Fishwheel 3						Fishwheel 4					
	Adults	Cum.	Tagged	Jacks	Cum.	CPUE	Adults	Cum.	Tagged	Jacks	Cum.	CPUE	Adults	Cum.	Tagged	Jacks	Cum.	CPUE	Adults	Cum.	Tagged	Jacks	Cum.	CPUE
25-Sep	0	1325	0	0	44		0	371	0	0	11		1	660	1	0	14	0.0	2	1374	1	0	37	0.1
26-Sep	0	1325	0	0	44		0	371	0	0	11		0	660	0	0	14	0.0	1	1375	1	0	37	0.0
27-Sep	0	1325	0	0	44		0	371	0	0	11		3	663	3	0	14	0.1	1	1376	1	2	39	0.0
28-Sep	0	1325	0	0	44		0	371	0	0	11		2	665	2	0	14	0.1	1	1377	1	1	40	0.0
29-Sep	0	1325	0	0	44		0	371	0	0	11		0	665	0	0	14	0.0	1	1378	1	0	40	0.0
30-Sep	0	1325	0	0	44		0	371	0	0	11		0	665	0	0	14	0.0	0	1378	0	0	40	0.0
01-Oct	0	1325	0	0	44		0	371	0	0	11		3	668	3	0	14	0.1	2	1380	2	0	40	0.1
02-Oct	0	1325	0	0	44		0	371	0	0	11		2	670	2	0	14	0.1	3	1383	2	0	40	0.1
03-Oct	0	1325	0	0	44		0	371	0	0	11		2	672	1	0	14	0.1	3	1386	3	0	40	0.1
04-Oct	0	1325	0	0	44		0	371	0	0	11		0	672	0	0	14	0.0	0	1386	0	0	40	0.0
05-Oct	0	1325	0	0	44		0	371	0	0	11		1	673	0	0	14	0.0	0	1386	0	0	40	0.0
06-Oct	0	1325	0	0	44		0	371	0	0	11		0	673	0	0	14		2	1388	2	0	40	0.1
07-Oct	0	1325	0	0	44		0	371	0	0	11		0	673	0	0	14		1	1389	1	0	40	0.0
08-Oct	0	1325	0	0	44		0	371	0	0	11		0	673	0	0	14		1	1390	1	0	40	0.0
09-Oct	0	1325	0	0	44		0	371	0	0	11		0	673	0	0	14		0	1390	0	0	40	0.0
10-Oct	0	1325	0	0	44		0	371	0	0	11		0	673	0	0	14		1	1391	1	0	40	0.0
11-Oct	0	1325	0	0	44		0	371	0	0	11		0	673	0	0	14		0	1391	0	0	40	0.0
12-Oct	0	1325	0	0	44		0	371	0	0	11		0	673	0	0	14		0	1391	0	0	40	0.0
13-Oct	0	1325	0	0	44		0	371	0	0	11		0	673	0	0	14		0	1391	0	0	40	0.0
Totals	1325		1152	44		0.573	371		339	11		0.1581	673		485	14		0.272	1391		790	40		0.5139

Table B-4. Daily catches, numbers of fish tagged and CPUE (adult catch per hour) for steelhead captured in the Nass River fishwheels, 1998.

	Fishwheel 1					Fishwheel 2					Fishwheel 3					Fishwheel 4				
Date	Adults	Cum.	Tagged	Cum.	CPUE	Adults	Cum.	Tagged	Cum.	CPUE	Adults	Cum.	Tagged	Cum.	CPUE	Adults	Cum.	Tagged	Cum.	CPUE
12-Jun	0	0	0	0	0.00	1	1	0	0	0.13	0	0	0	0		0	0	0	0	
13-Jun	0	0	0	0	0.00	2	3	0	0	0.09	0	0	0	0		0	0	0	0	
14-Jun	1	1	0	0	0.04	1	4	0	0	0.04	0	0	0	0		0	0	0	0	
15-Jun	0	1	0	0	0.00	0	4	0	0	0.00	0	0	0	0		0	0	0	0	
16-Jun	0	1	0	0	0.00	0	4	0	0	0.00	0	0	0	0	0.00	0	0	0	0	
17-Jun	0	1	0	0	0.00	1	5	0	0	0.04	0	0	0	0	0.00	0	0	0	0	
18-Jun	0	1	0	0	0.00	0	5	0	0	0.00	0	0	0	0	0.00	0	0	0	0	
19-Jun	0	1	0	0	0.00	2	7	0	0	0.10	0	0	0	0	0.00	0	0	0	0	0.00
20-Jun	0	1	0	0	0.00	0	7	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
21-Jun	0	1	0	0	0.00	0	7	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
22-Jun	0	1	0	0	0.00	0	7	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
23-Jun	0	1	0	0	0.00	0	7	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
24-Jun	0	1	0	0	0.00	1	8	0	0	0.04	0	0	0	0	0.00	0	0	0	0	0.00
25-Jun	0	1	0	0	0.00	0	8	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
26-Jun	0	1	0	0	0.00	0	8	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
27-Jun	0	1	0	0	0.00	0	8	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
28-Jun	0	1	0	0	0.00	0	8	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
29-Jun	0	1	0	0	0.00	0	8	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
30-Jun	0	1	0	0	0.00	0	8	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
01-Jul	0	1	0	0	0.00	0	8	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
02-Jul	0	1	0	0	0.00	0	8	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
03-Jul	0	1	0	0	0.00	0	8	0	0	0.00	1	1	0	0	0.04	0	0	0	0	0.00
04-Jul	0	1	0	0	0.00	0	8	0	0	0.00	0	1	0	0	0.00	0	0	0	0	0.00
05-Jul	0	1	0	0	0.00	0	8	0	0	0.00	0	1	0	0	0.00	0	0	0	0	0.00
06-Jul	0	1	0	0	0.00	0	8	0	0	0.00	0	1	0	0	0.00	0	0	0	0	0.00
07-Jul	1	2	1	1	0.04	0	8	0	0	0.00	0	1	0	0	0.00	0	0	0	0	0.00
08-Jul	0	2	0	1	0.00	0	8	0	0	0.00	0	1	0	0	0.00	0	0	0	0	0.00
09-Jul	0	2	0	1	0.00	0	8	0	0	0.00	0	1	0	0	0.00	0	0	0	0	0.00
10-Jul	0	2	0	1	0.00	0	8	0	0	0.00	0	1	0	0	0.00	0	0	0	0	0.00
11-Jul	0	2	0	1	0.00	0	8	0	0	0.00	0	1	0	0	0.00	0	0	0	0	0.00
12-Jul	0	2	0	1	0.00	1	9	1	1	0.04	0	1	0	0	0.00	0	0	0	0	0.00
13-Jul	2	4	2	3	0.08	1	10	1	2	0.04	0	1	0	0	0.00	0	0	0	0	0.00
14-Jul	0	4	0	3	0.00	0	10	0	2	0.00	0	1	0	0	0.00	0	0	0	0	0.00
15-Jul	0	4	0	3	0.00	0	10	0	2	0.00	1	2	1	1	0.04	0	0	0	0	0.00

Table B-4. Daily catches, numbers of fish tagged and CPUE (adult catch per hour) for steelhead captured in the Nass River fishwheels, 1998.

Date	Fishwheel 1					Fishwheel 2					Fishwheel 3					Fishwheel 4				
	Adults	Cum.	Tagged	Cum.	CPUE	Adults	Cum.	Tagged	Cum.	CPUE	Adults	Cum.	Tagged	Cum.	CPUE	Adults	Cum.	Tagged	Cum.	CPUE
16-Jul	0	4	0	3	0.00	0	10	0	2	0.00	0	2	0	1	0.00	0	0	0	0	0.00
17-Jul	0	4	0	3	0.00	0	10	0	2	0.00	0	2	0	1	0.00	0	0	0	0	0.00
18-Jul	0	4	0	3	0.00	0	10	0	2	0.00	0	2	0	1	0.00	1	1	1	1	0.04
19-Jul	0	4	0	3	0.00	0	10	0	2	0.00	0	2	0	1	0.00	0	1	0	1	0.00
20-Jul	0	4	0	3	0.00	0	10	0	2	0.00	0	2	0	1	0.00	0	1	0	1	0.00
21-Jul	0	4	0	3	0.00	1	11	1	3	0.04	0	2	0	1	0.00	0	1	0	1	0.00
22-Jul	1	5	1	4	0.04	0	11	0	3	0.00	1	3	1	2	0.04	5	6	3	4	0.21
23-Jul	1	6	1	5	0.04	0	11	0	3	0.00	0	3	0	2	0.00	3	9	3	7	0.13
24-Jul	0	6	0	5	0.00	0	11	0	3	0.00	1	4	1	3	0.04	1	10	1	8	0.04
25-Jul	0	6	0	5	0.00	0	11	0	3	0.00	0	4	0	3	0.00	1	11	0	8	0.06
26-Jul	2	8	2	7	0.08	1	12	1	4	0.04	3	7	2	5	0.09	0	11	0	8	0.00
27-Jul	1	9	1	8	0.04	1	13	1	5	0.04	0	7	0	5	0.00	0	11	0	8	0.00
28-Jul	1	10	1	9	0.04	2	15	2	7	0.08	1	8	1	6	0.04	0	11	0	8	0.00
29-Jul	1	11	1	10	0.04	1	16	1	8	0.04	0	8	0	6	0.00	0	11	0	8	0.00
30-Jul	3	14	3	13	0.12	2	18	2	10	0.08	2	10	2	8	0.08	0	11	0	8	0.00
31-Jul	0	14	0	13	0.00	1	19	1	11	0.04	3	13	3	11	0.13	1	12	1	9	0.04
01-Aug	0	14	0	13	0.00	3	22	3	14	0.13	1	14	1	12	0.04	0	12	0	9	0.00
02-Aug	1	15	1	14	0.04	0	22	0	14	0.00	1	15	1	13	0.05	0	12	0	9	0.00
03-Aug	2	17	1	15	0.09	0	22	0	14	0.00	2	17	1	14	0.08	0	12	0	9	0.00
04-Aug	2	19	0	15	0.07	4	26	4	18	0.15	7	24	6	20	0.29	2	14	2	11	0.08
05-Aug	1	20	1	16	0.05	1	27	1	19	0.05	3	27	3	23	0.13	5	19	5	16	0.20
06-Aug	2	22	2	18	0.08	0	27	0	19	0.00	2	29	2	25	0.16	2	21	2	18	0.08
07-Aug	2	24	2	20	0.08	0	27	0	19	0.00	1	30	1	26	0.05	4	25	3	21	0.17
08-Aug	2	26	2	22	0.08	0	27	0	19	0.00	6	36	5	31	0.58	1	26	1	22	0.04
09-Aug	0	26	0	22	0.00	0	27	0	19	0.00	0	36	0	31	0.00	0	26	0	22	0.00
10-Aug	3	29	3	25	0.13	1	28	1	20	0.04	0	36	0	31	0.00	0	26	0	22	0.00
11-Aug	0	29	0	25	0.00	0	28	0	20	0.00	0	36	0	31	0.00	0	26	0	22	0.00
12-Aug	2	31	2	27	0.08	2	30	2	22	0.08	0	36	0	31	0.00	4	30	4	26	0.17
13-Aug	0	31	0	27	0.00	2	32	2	24	0.08	0	36	0	31	0.00	0	30	0	26	0.00
14-Aug	0	31	0	27	0.00	0	32	0	24	0.00	4	40	3	34	0.69	0	30	0	26	0.00
15-Aug	0	31	0	27	0.00	2	34	2	26	0.09	0	40	0	34		3	33	3	29	0.13
16-Aug	0	31	0	27	0.00	2	36	2	28	0.07	0	40	0	34		2	35	2	31	0.07
17-Aug	3	34	3	30	0.12	3	39	2	30	0.12	0	40	0	34		6	41	4	35	0.26
18-Aug	3	37	3	33	0.14	2	41	2	32	0.09	2	42	2	36	0.25	11	52	10	45	0.48

Table B-4. Daily catches, numbers of fish tagged and CPUE (adult catch per hour) for steelhead captured in the Nass River fishwheels, 1998.

Date	Fishwheel 1					Fishwheel 2					Fishwheel 3					Fishwheel 4				
	Adults	Cum.	Tagged	Cum.	CPUE	Adults	Cum.	Tagged	Cum.	CPUE	Adults	Cum.	Tagged	Cum.	CPUE	Adults	Cum.	Tagged	Cum.	CPUE
19-Aug	3	40	2	35	0.13	4	45	4	36	0.17	5	47	5	41	0.21	17	69	10	55	0.70
20-Aug	3	43	3	38	0.12	3	48	3	39	0.12	6	53	4	45	0.25	14	83	14	69	0.59
21-Aug	13	56	12	50	0.55	0	48	0	39	0.00	18	71	16	61	0.75	13	96	12	81	0.56
22-Aug	11	67	10	60	0.50	2	50	2	41	0.08	10	81	8	69	0.42	6	102	6	87	0.51
23-Aug	9	76	8	68	0.37	1	51	1	42	0.08	3	84	2	71	0.25	11	113	10	97	0.44
24-Aug	7	83	6	74	0.29	2	53	2	44	0.08	7	91	4	75	0.29	9	122	5	102	0.41
25-Aug	2	85	2	76	0.09	1	54	1	45	0.04	6	97	6	81	0.25	9	131	7	109	0.40
26-Aug	0	85	0	76	0.00	0	54	0	45	0.00	3	100	2	83	0.13	13	144	11	120	0.55
27-Aug	2	87	2	78	0.09	3	57	3	48	0.12	3	103	3	86	0.12	10	154	7	127	0.42
28-Aug	3	90	1	79	0.12	0	57	0	48	0.00	4	107	4	90	0.17	8	162	8	135	0.34
29-Aug	2	92	2	81	0.08	0	57	0	48	0.00	0	107	0	90	0.00	3	165	3	138	0.14
30-Aug	0	92	0	81	0.00	3	60	3	51	0.13	0	107	0	90	0.00	0	165	0	138	0.00
31-Aug	0	92	0	81	0.00	2	62	2	53	0.10	1	108	1	91	0.11	3	168	3	141	0.35
01-Sep	1	93	0	81	0.04	3	65	3	56	0.15	7	115	6	97	0.30	4	172	4	145	0.16
02-Sep	1	94	1	82	0.04	0	65	0	56	0.00	2	117	2	99	0.08	4	176	4	149	0.16
03-Sep	1	95	1	83	0.04	0	65	0	56	0.00	1	118	1	100	0.04	4	180	4	153	0.17
04-Sep	1	96	1	84	0.04	0	65	0	56	0.00	6	124	6	106	0.25	11	191	10	163	0.46
05-Sep	5	101	5	89	0.23	1	66	1	57	0.05	5	129	5	111	0.22	29	220	29	192	1.26
06-Sep	4	105	4	93	0.17	0	66	0	57	0.00	10	139	10	121	0.42	14	234	13	205	1.22
07-Sep	1	106	1	94	0.05	1	67	1	58	0.05	4	143	4	125	0.17	24	258	22	227	0.94
08-Sep	4	110	4	98	0.20	0	67	0	58	0.00	2	145	2	127	0.08	7	265	7	234	0.29
09-Sep	0	110	0	98	0.00	0	67	0	58	0.00	1	146	1	128	0.05	8	273	8	242	0.34
10-Sep	4	114	4	102	0.17	1	68	1	59	0.04	1	147	1	129	0.04	7	280	7	249	0.29
11-Sep	1	115	1	103	0.04	0	68	0	59	0.00	1	148	1	130	0.04	9	289	8	257	0.37
12-Sep	0	115	0	103	0.00	0	68	0	59	0.00	1	149	1	131	0.04	12	301	11	268	0.50
13-Sep	1	116	1	104	0.04	0	68	0	59	0.00	1	150	1	132	0.04	2	303	2	270	0.08
14-Sep	1	117	1	105	0.04	0	68	0	59	0.00	3	153	3	135	0.13	5	308	5	275	0.21
15-Sep	1	118	1	106	0.04	2	70	2	61	0.08	2	155	2	137	0.09	9	317	9	284	0.39
16-Sep	0	118	0	106	0.00	0	70	0	61	0.00	1	156	1	138	0.04	7	324	7	291	0.54
17-Sep	1	119	1	107	0.05	0	70	0	61	0.00	0	156	0	138	0.00	5	329	5	296	0.21
18-Sep	0	119	0	107		1	71	1	62	0.06	1	157	1	139	0.04	0	329	0	296	0.00
19-Sep	0	119	0	107		0	71	0	62	0.00	1	158	1	140	0.09	4	333	4	300	0.17
20-Sep	0	119	0	107		0	71	0	62	0.00	0	158	0	140	0.00	1	334	1	301	0.04
21-Sep	0	119	0	107		0	71	0	62		0	158	0	140	0.00	3	337	3	304	0.13

Table B-4. Daily catches, numbers of fish tagged and CPUE (adult catch per hour) for steelhead captured in the Nass River fishwheels, 1998.

Date	Fishwheel 1					Fishwheel 2					Fishwheel 3					Fishwheel 4				
	Adults	Cum.	Tagged	Cum.	CPUE	Adults	Cum.	Tagged	Cum.	CPUE	Adults	Cum.	Tagged	Cum.	CPUE	Adults	Cum.	Tagged	Cum.	CPUE
22-Sep	0	119	0	107		0	71	0	62		0	158	0	140	0.00	2	339	2	306	0.08
23-Sep	0	119	0	107		0	71	0	62		1	159	1	141	0.04	0	339	0	306	0.00
24-Sep	0	119	0	107		0	71	0	62		0	159	0	141	0.00	0	339	0	306	0.00
25-Sep	0	119	0	107		0	71	0	62		0	159	0	141	0.00	2	341	2	308	0.09
26-Sep	0	119	0	107		0	71	0	62		1	160	1	142	0.04	0	341	0	308	0.00
27-Sep	0	119	0	107		0	71	0	62		0	160	0	142	0.00	2	343	2	310	0.07
28-Sep	0	119	0	107		0	71	0	62		1	161	1	143	0.04	2	345	2	312	0.08
29-Sep	0	119	0	107		0	71	0	62		0	161	0	143	0.00	0	345	0	312	0.00
30-Sep	0	119	0	107		0	71	0	62		0	161	0	143	0.00	3	348	3	315	0.12
01-Oct	0	119	0	107		0	71	0	62		1	162	1	144	0.04	0	348	0	315	0.00
02-Oct	0	119	0	107		0	71	0	62		0	162	0	144	0.00	0	348	0	315	0.00
03-Oct	0	119	0	107		0	71	0	62		0	162	0	144	0.00	0	348	0	315	0.00
04-Oct	0	119	0	107		0	71	0	62		0	162	0	144	0.00	0	348	0	315	0.00
05-Oct	0	119	0	107		0	71	0	62		0	162	0	144	0.00	1	349	1	316	0.03
06-Oct	0	119	0	107		0	71	0	62		0	162	0	144		2	351	2	318	0.08
07-Oct	0	119	0	107		0	71	0	62		0	162	0	144		3	354	3	321	0.12
08-Oct	0	119	0	107		0	71	0	62		0	162	0	144		0	354	0	321	0.00
09-Oct	0	119	0	107		0	71	0	62		0	162	0	144		0	354	0	321	0.00
10-Oct	0	119	0	107		0	71	0	62		0	162	0	144		0	354	0	321	0.00
11-Oct	0	119	0	107		0	71	0	62		0	162	0	144		0	354	0	321	0.00
12-Oct	0	119	0	107		0	71	0	62		0	162	0	144		0	354	0	321	0.00
13-Oct	0	119	0	107		0	71	0	62		0	162	0	144		1	355	1	322	0.04
Totals[a]	119		107		0.05	71		62		0.03	162		144		0.07	355		322		0.13
Totals[b]	118		107			63		62			162		144			355		322		

[a] Total from 12 June to 13 October.

[b] Total from 3 July to 13 October (excludes winter-run fish and kelts).

Table B-5. Daily catches of pink and chum salmon at the Nass River fishwheels, 1998.

Date	Pink										Chum									
	FW1	Cum.	FW2	Cum.	Fw3	Cum.	Fw4	Cum.	Total	Cum.	FW1	Cum.	FW2	Cum.	FW3	Cum.	FW4	Cum.	Total	Cum.
29-Jun	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	1	1
30-Jun	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	0	0	1	2
01-Jul	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	2
02-Jul	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	2
03-Jul	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	2
04-Jul	0	0	1	1	0	0	0	0	1	1	0	1	0	0	0	1	0	0	0	2
05-Jul	0	0	0	1	0	0	0	0	0	1	0	1	0	0	0	1	0	0	0	2
06-Jul	0	0	0	1	0	0	0	0	0	1	0	1	0	0	0	1	0	0	0	2
07-Jul	0	0	0	1	0	0	0	0	0	1	0	1	0	0	0	1	0	0	0	2
08-Jul	1	1	0	1	1	1	0	0	2	3	0	1	0	0	0	1	0	0	0	2
09-Jul	1	2	0	1	0	1	0	0	1	4	0	1	0	0	0	1	0	0	0	2
10-Jul	0	2	0	1	0	1	0	0	0	4	0	1	0	0	0	1	0	0	0	2
11-Jul	1	3	1	2	1	2	0	0	3	7	0	1	0	0	0	1	0	0	0	2
12-Jul	3	6	1	3	0	2	0	0	4	11	0	1	0	0	0	1	0	0	0	2
13-Jul	4	10	0	3	0	2	0	0	4	15	0	1	0	0	0	1	0	0	0	2
14-Jul	3	13	0	3	0	2	4	4	7	22	0	1	0	0	0	1	0	0	0	2
15-Jul	10	23	2	5	2	4	1	5	15	37	0	1	0	0	0	1	0	0	0	2
16-Jul	8	31	2	7	2	6	0	5	12	49	0	1	0	0	1	2	0	0	1	3
17-Jul	10	41	2	9	0	6	0	5	12	61	1	2	0	0	0	2	0	0	1	4
18-Jul	13	54	1	10	0	6	0	5	14	75	0	2	0	0	0	2	0	0	0	4
19-Jul	14	68	1	11	1	7	3	8	19	94	0	2	0	0	1	3	0	0	1	5
20-Jul	25	93	4	15	3	10	1	9	33	127	0	2	0	0	1	4	1	1	2	7
21-Jul	27	120	1	16	2	12	2	11	32	159	0	2	0	0	0	4	0	1	0	7
22-Jul	33	153	1	17	2	14	2	13	38	197	0	2	0	0	0	4	1	2	1	8
23-Jul	24	177	3	20	4	18	6	19	37	234	0	2	0	0	0	4	0	2	0	8
24-Jul	51	228	0	20	0	18	6	25	57	291	0	2	0	0	2	6	0	2	2	10
25-Jul	62	290	5	25	1	19	1	26	69	360	0	2	0	0	0	6	0	2	0	10
26-Jul	151	441	15	40	8	27	11	37	185	545	0	2	0	0	0	6	0	2	0	10
27-Jul	80	521	22	62	7	34	1	38	110	655	0	2	0	0	0	6	0	2	0	10
28-Jul	53	574	12	74	4	38	4	42	73	728	0	2	0	0	1	7	0	2	1	11
29-Jul	97	671	39	113	7	45	10	52	153	881	0	2	0	0	0	7	0	2	0	11
30-Jul	115	786	25	138	15	60	8	60	163	1044	0	2	0	0	1	8	1	3	2	13

Table B-5. Daily catches of pink and chum salmon at the Nass River fishwheels, 1998.

Date	Pink										Chum									
	FW1	Cum.	FW2	Cum.	Fw3	Cum.	Fw4	Cum.	Total	Cum.	FW1	Cum.	FW2	Cum.	FW3	Cum.	FW4	Cum.	Total	Cum.
31-Jul	174	960	39	177	12	72	14	74	239	1283	0	2	1	1	2	10	0	3	3	16
01-Aug	311	1271	49	226	16	88	27	101	403	1686	0	2	0	1	0	10	1	4	1	17
02-Aug	351	1622	121	347	35	123	30	131	537	2223	2	4	0	1	1	11	0	4	3	20
03-Aug	238	1860	28	375	25	148	32	163	323	2546	1	5	0	1	2	13	1	5	4	24
04-Aug	354	2214	44	419	32	180	31	194	461	3007	1	6	0	1	2	15	1	6	4	28
05-Aug	126	2340	21	440	24	204	37	231	208	3215	1	7	0	1	0	15	5	11	6	34
06-Aug	289	2629	21	461	14	218	47	278	371	3586	2	9	0	1	1	16	0	11	3	37
07-Aug	196	2825	28	489	24	242	90	368	338	3924	3	12	0	1	2	18	0	11	5	42
08-Aug	226	3051	24	513	14	256	62	430	326	4250	3	15	0	1	0	18	6	17	9	51
09-Aug	54	3105	32	545	16	272	30	460	132	4382	0	15	0	1	0	18	1	18	1	52
10-Aug	8	3113	2	547	7	279	7	467	24	4406	0	15	0	1	0	18	0	18	0	52
11-Aug	5	3118	6	553	12	291	17	484	40	4446	0	15	0	1	2	20	1	19	3	55
12-Aug	63	3181	15	568	71	362	27	511	176	4622	0	15	0	1	2	22	2	21	4	59
13-Aug	79	3260	12	580	37	399	52	563	180	4802	0	15	0	1	0	22	1	22	1	60
14-Aug	68	3328	16	596	71	470	78	641	233	5035	0	15	0	1	1	23	2	24	3	63
15-Aug	4	3332	7	603	3	473	21	662	35	5070	0	15	1	2	0	23	0	24	1	64
16-Aug	102	3434	23	626	0	473	168	830	293	5363	0	15	1	3	0	23	1	25	2	66
17-Aug	507	3941	57	683	0	473	377	1207	941	6304	3	18	1	4	0	23	1	26	5	71
18-Aug	258	4199	27	710	57	530	263	1470	605	6909	2	20	0	4	1	24	6	32	9	80
19-Aug	413	4612	54	764	72	602	203	1673	742	7651	1	21	0	4	3	27	8	40	12	92
20-Aug	324	4936	29	793	56	658	144	1817	553	8204	2	23	1	5	1	28	5	45	9	101
21-Aug	288	5224	48	841	27	685	94	1911	457	8661	2	25	0	5	2	30	1	46	5	106
22-Aug	202	5426	27	868	38	723	47	1958	314	8975	5	30	0	5	8	38	3	49	16	122
23-Aug	185	5611	34	902	16	739	52	2010	287	9262	2	32	0	5	1	39	0	49	3	125
24-Aug	108	5719	9	911	30	769	55	2065	202	9464	7	39	0	5	3	42	2	51	12	137
25-Aug	83	5802	5	916	11	780	62	2127	161	9625	0	39	0	5	1	43	3	54	4	141
26-Aug	58	5860	7	923	16	796	63	2190	144	9769	2	41	0	5	2	45	2	56	6	147
27-Aug	49	5909	7	930	22	818	38	2228	116	9885	0	41	0	5	4	49	3	59	7	154
28-Aug	83	5992	11	941	29	847	42	2270	165	10050	3	44	0	5	0	49	4	63	7	161
29-Aug	33	6025	4	945	17	864	25	2295	79	10129	0	44	0	5	1	50	3	66	4	165
30-Aug	2	6027	9	954	0	864	3	2298	14	10143	0	44	0	5	0	50	0	66	0	165
31-Aug	4	6031	1	955	8	872	6	2304	19	10162	1	45	0	5	0	50	0	66	1	166

Table B-5. Daily catches of pink and chum salmon at the Nass River fishwheels, 1998.

	Pink										Chum									
Date	FW1	Cum.	FW2	Cum.	Fw3	Cum.	Fw4	Cum.	Total	Cum.	FW1	Cum.	FW2	Cum.	FW3	Cum.	FW4	Cum.	Total	Cum.
01-Sep	44	6075	8	963	21	893	16	2320	89	10251	1	46	0	5	0	50	0	66	1	167
02-Sep	12	6087	7	970	7	900	9	2329	35	10286	1	47	0	5	0	50	0	66	1	168
03-Sep	11	6098	10	980	17	917	19	2348	57	10343	0	47	0	5	0	50	0	66	0	168
04-Sep	27	6125	8	988	24	941	29	2377	88	10431	3	50	0	5	1	51	0	66	4	172
05-Sep	51	6176	6	994	1	942	16	2393	74	10505	6	56	0	5	0	51	2	68	8	180
06-Sep	4	6180	1	995	6	948	10	2403	21	10526	5	61	0	5	1	52	0	68	6	186
07-Sep	6	6186	2	997	4	952	3	2406	15	10541	0	61	0	5	1	53	0	68	1	187
08-Sep	2	6188	0	997	0	952	0	2406	2	10543	0	61	0	5	2	55	0	68	2	189
09-Sep	5	6193	3	1000	1	953	2	2408	11	10554	0	61	0	5	0	55	0	68	0	189
10-Sep	13	6206	2	1002	1	954	12	2420	28	10582	6	67	0	5	0	55	2	70	8	197
11-Sep	12	6218	2	1004	1	955	1	2421	16	10598	7	74	0	5	2	57	3	73	12	209
12-Sep	0	6218	0	1004	1	956	2	2423	3	10601	1	75	1	6	0	57	0	73	2	211
13-Sep	1	6219	1	1005	1	957	2	2425	5	10606	0	75	1	7	0	57	0	73	1	212
14-Sep	0	6219	1	1006	1	958	2	2427	4	10610	1	76	0	7	0	57	1	74	2	214
15-Sep	1	6220	1	1007	0	958	4	2431	6	10616	6	82	0	7	0	57	0	74	6	220
16-Sep	2	6222	2	1009	0	958	1	2432	5	10621	8	90	0	7	1	58	1	75	10	230
17-Sep	3	6225	0	1009	0	958	0	2432	3	10624	9	99	0	7	0	58	1	76	10	240
18-Sep	0	6225	0	1009	0	958	0	2432	0	10624	0	99	0	7	1	59	0	76	1	241
19-Sep	0	6225	0	1009	0	958	0	2432	0	10624	0	99	0	7	0	59	0	76	0	241
20-Sep	0	6225	0	1009	0	958	0	2432	0	10624	0	99	0	7	0	59	0	76	0	241
21-Sep	0	6225	0	1009	0	958	0	2432	0	10624	0	99	0	7	0	59	1	77	1	242
22-Sep	0	6225	0	1009	0	958	0	2432	0	10624	0	99	0	7	1	60	0	77	1	243
23-Sep	0	6225	0	1009	0	958	0	2432	0	10624	0	99	0	7	0	60	1	78	1	244
24-Sep	0	6225	0	1009	0	958	0	2432	0	10624	0	99	0	7	0	60	1	79	1	245
25-Sep	0	6225	0	1009	0	958	0	2432	0	10624	0	99	0	7	0	60	1	80	1	246
26-Sep	0	6225	0	1009	0	958	0	2432	0	10624	0	99	0	7	2	62	1	81	3	249
27-Sep	0	6225	0	1009	0	958	0	2432	0	10624	0	99	0	7	1	63	0	81	1	250
28-Sep	0	6225	0	1009	0	958	0	2432	0	10624	0	99	0	7	0	63	1	82	1	251
29-Sep	0	6225	0	1009	0	958	0	2432	0	10624	0	99	0	7	0	63	1	83	1	252
30-Sep	0	6225	0	1009	0	958	0	2432	0	10624	0	99	0	7	1	64	1	84	2	254
01-Oct	0	6225	0	1009	0	958	0	2432	0	10624	0	99	0	7	0	64	4	88	4	258
02-Oct	0	6225	0	1009	0	958	0	2432	0	10624	0	99	0	7	0	64	0	88	0	258

Table B-5. Daily catches of pink and chum salmon at the Nass River fishwheels, 1998.

Date	Pink										Chum									
	FW1	Cum.	FW2	Cum.	Fw3	Cum.	Fw4	Cum.	Total	Cum.	FW1	Cum.	FW2	Cum.	FW3	Cum.	FW4	Cum.	Total	Cum.
03-Oct	0	6225	0	1009	0	958	0	2432	0	10624	0	99	0	7	1	65	2	90	3	261
04-Oct	0	6225	0	1009	0	958	0	2432	0	10624	0	99	0	7	0	65	0	90	0	261
05-Oct	0	6225	0	1009	0	958	0	2432	0	10624	0	99	0	7	0	65	3	93	3	264
06-Oct	0	6225	0	1009	0	958	0	2432	0	10624	0	99	0	7	0	65	5	98	5	269
07-Oct	0	6225	0	1009	0	958	0	2432	0	10624	0	99	0	7	0	65	0	98	0	269
08-Oct	0	6225	0	1009	0	958	0	2432	0	10624	0	99	0	7	0	65	1	99	1	270
09-Oct	0	6225	0	1009	0	958	0	2432	0	10624	0	99	0	7	0	65	0	99	0	270
10-Oct	0	6225	0	1009	0	958	0	2432	0	10624	0	99	0	7	0	65	0	99	0	270
11-Oct	0	6225	0	1009	0	958	0	2432	0	10624	0	99	0	7	0	65	1	100	1	271
12-Oct	0	6225	0	1009	0	958	0	2432	0	10624	0	99	0	7	0	65	0	100	0	271
13-Oct	0	6225	0	1009	0	958	0	2432	0	10624	0	99	0	7	0	65	1	101	1	272
Totals	6225		1009		958		2432		10624		99		7		65		101		272	

Table B-6. Catches of other salmonids captured in the Nass River fishwheels, 1998.

Date	Dolly Varden					Cutthroat trout					Rainbow trout				
	FW1	FW2	FW4	FW4	Total	FW1	FW2	FW3	FW4	Total	FW1	FW2	FW3	FW4	Total
12-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14-Jun	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0
15-Jun	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0
16-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17-Jun	0	1	0	0	1	0	4	0	0	4	0	0	0	0	0
18-Jun	0	0	0	0	0	2	1	0	0	3	0	0	0	0	0
19-Jun	0	0	0	0	0	1	1	0	0	2	0	0	0	0	0
20-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21-Jun	0	2	0	0	2	0	3	0	0	3	0	0	0	0	0
22-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23-Jun	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0
24-Jun	1	2	2	1	6	0	0	0	0	0	0	0	0	0	0
25-Jun	0	2	0	0	2	0	1	0	1	2	0	0	0	0	0
26-Jun	2	1	0	0	3	0	0	0	0	0	0	0	0	0	0
27-Jun	0	2	0	0	2	1	0	0	0	1	0	0	0	0	0
28-Jun	6	5	0	0	11	0	0	0	0	0	0	0	0	0	0
29-Jun	0	1	0	1	2	1	0	1	0	2	0	0	0	0	0
30-Jun	4	0	0	0	4	0	0	0	0	0	0	0	0	0	0
01-Jul	0	0	1	0	1	0	1	1	0	2	0	0	0	0	0
02-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03-Jul	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0
04-Jul	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0
05-Jul	2	0	0	0	2	1	0	0	0	1	0	0	0	0	0
06-Jul	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0
07-Jul	0	0	0	0	0	1	1	0	0	2	0	0	0	0	0
08-Jul	9	6	0	0	15	0	0	0	0	0	0	0	0	1	1
09-Jul	9	3	1	0	13	1	1	0	0	2	0	0	0	0	0
10-Jul	10	0	0	0	10	0	0	0	0	0	0	0	0	0	0
11-Jul	9	0	0	1	10	0	0	0	0	0	0	0	0	0	0
12-Jul	11	2	1	0	14	0	0	0	0	0	0	0	0	0	0
13-Jul	12	2	0	0	14	0	0	0	0	0	0	0	0	0	0
14-Jul	1	1	0	0	2	0	0	0	0	0	0	0	0	0	0
15-Jul	7	1	1	0	9	0	0	0	0	0	0	0	0	0	0
16-Jul	2	2	0	0	4	0	1	1	0	2	0	0	0	0	0
17-Jul	5	0	0	0	5	0	0	0	0	0	0	0	0	0	0
18-Jul	3	0	0	1	4	0	0	0	0	0	0	0	0	0	0
19-Jul	2	0	0	0	2	0	1	0	0	1	0	0	0	0	0
20-Jul	6	0	1	0	7	0	0	0	0	0	0	0	0	0	0
21-Jul	5	0	0	0	5	0	0	0	0	0	0	0	0	0	0
22-Jul	5	0	0	0	5	0	0	0	0	0	0	0	0	0	0
23-Jul	0	1	1	0	2	1	0	1	0	2	0	0	0	0	0
24-Jul	4	0	0	2	6	1	0	0	0	1	1	0	0	0	1
25-Jul	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0
26-Jul	3	0	1	0	4	1	0	0	0	1	0	0	0	0	0
27-Jul	1	0	0	0	1	2	0	1	0	3	0	0	0	0	0
28-Jul	3	0	0	0	3	1	0	0	1	2	0	0	0	0	0

Table B-6. Catches of other salmonids captured in the Nass River fishwheels, 1998.

Date	Dolly Varden					Cutthroat trout					Rainbow trout				
	FW1	FW2	FW4	FW4	Total	FW1	FW2	FW3	FW4	Total	FW1	FW2	FW3	FW4	Total
29-Jul	5	0	1	0	6	0	0	0	0	0	0	0	0	0	0
30-Jul	4	0	0	0	4	0	0	0	0	0	0	0	0	0	0
31-Jul	4	0	0	0	4	2	0	0	0	2	0	0	0	0	0
01-Aug	5	1	0	0	6	0	0	0	0	0	0	0	0	0	0
02-Aug	7	5	0	0	12	0	0	0	0	0	0	0	0	0	0
03-Aug	3	4	1	2	10	0	0	0	0	0	0	0	0	0	0
04-Aug	7	0	1	0	8	0	0	0	0	0	0	0	0	0	0
05-Aug	5	0	0	0	5	1	0	0	0	1	0	0	0	0	0
06-Aug	3	1	0	0	4	2	0	0	0	2	0	0	0	0	0
07-Aug	2	0	0	1	3	0	0	0	0	0	0	0	0	0	0
08-Aug	4	2	1	0	7	0	0	0	0	0	0	0	0	0	0
09-Aug	1	1	0	0	2	0	0	2	0	2	0	0	0	0	0
10-Aug	2	0	0	2	4	0	1	0	0	1	0	0	0	0	0
11-Aug	1	0	0	0	1	2	0	0	0	2	0	0	0	0	0
12-Aug	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0
13-Aug	3	0	0	0	3	0	0	0	0	0	0	0	0	0	0
14-Aug	3	0	0	0	3	1	0	0	0	1	0	0	0	0	0
15-Aug	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16-Aug	4	1	0	0	5	0	0	0	0	0	0	0	0	0	0
17-Aug	5	0	0	0	5	0	0	0	0	0	0	0	0	0	0
18-Aug	5	0	1	1	7	0	0	0	0	0	0	0	0	0	0
19-Aug	5	0	0	0	5	0	0	0	0	0	0	0	0	0	0
20-Aug	3	1	0	0	4	0	0	0	0	0	0	0	0	0	0
21-Aug	6	1	0	0	7	0	0	0	0	0	0	0	0	0	0
22-Aug	7	1	0	0	8	0	0	1	0	1	0	0	0	0	0
23-Aug	7	0	0	1	8	1	0	0	0	1	1	0	0	0	1
24-Aug	3	0	0	1	4	1	0	0	0	1	0	1	0	0	1
25-Aug	4	0	0	0	4	0	0	0	0	0	0	0	0	0	0
26-Aug	1	0	1	0	2	0	0	0	0	0	0	0	0	0	0
27-Aug	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28-Aug	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0
29-Aug	2	1	0	0	3	0	0	0	0	0	0	0	0	0	0
30-Aug	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0
31-Aug	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01-Sep	1	0	0	1	2	0	0	1	0	1	0	0	0	0	0
02-Sep	1	0	0	0	1	3	0	0	0	3	0	0	0	0	0
03-Sep	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04-Sep	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05-Sep	1	1	0	0	2	0	0	0	0	0	0	0	0	0	0
06-Sep	3	0	0	0	3	0	0	0	0	0	0	0	0	0	0
07-Sep	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08-Sep	2	1	1	0	4	1	0	0	0	1	0	0	0	0	0
09-Sep	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0
10-Sep	1	0	1	0	2	0	0	0	0	0	0	0	0	0	0
11-Sep	6	0	0	0	6	0	0	0	0	0	0	0	0	0	0
12-Sep	0	1	1	1	3	0	0	0	0	0	0	0	0	0	0

Table B-6. Catches of other salmonids captured in the Nass River fishwheels, 1998.

	Dolly Varden					Cutthroat trout					Rainbow trout				
Date	FW1	FW2	FW4	FW4	Total	FW1	FW2	FW3	FW4	Total	FW1	FW2	FW3	FW4	Total
13-Sep	3	0	0	1	4	0	0	0	0	0	0	0	0	0	0
14-Sep	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0
15-Sep	1	0	1	0	2	0	0	0	0	0	0	0	0	3	3
16-Sep	1	0	0	0	1	0	0	1	0	1	0	0	0	0	0
17-Sep	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0
18-Sep	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19-Sep	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20-Sep	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
21-Sep	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0
22-Sep	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0
23-Sep	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24-Sep	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25-Sep	0	0	1	0	1	0	0	1	0	1	0	0	1	0	1
26-Sep	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0
27-Sep	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0
28-Sep	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0
29-Sep	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0
30-Sep	0	0	1	4	5	0	0	0	0	0	0	0	0	0	0
01-Oct	0	0	5	3	8	0	0	0	0	0	0	0	0	0	0
02-Oct	0	0	0	5	5	0	0	0	0	0	0	0	0	0	0
03-Oct	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0
04-Oct	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05-Oct	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06-Oct	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0
07-Oct	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08-Oct	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09-Oct	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0
10-Oct	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11-Oct	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Oct	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13-Oct	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	262	60	28	38	388	29	17	11	4	61	2	1	1	5	9

Table B-7. Catches of non-salmonids captured in the Nass River fishwheels, 1998.

Date	Whitefish				Long nose sucker				Northern squawfish				Pacific Lamprey				Prickley Sculpin			
	FW1	FW2	FW3	FW4	FW1	FW2	FW3	FW4	FW1	FW2	FW3	FW4	FW1	FW2	FW3	FW4	FW1	FW2	FW3	FW4
12-Jun	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15-Jun	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
18-Jun	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
19-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
20-Jun	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
21-Jun	1	0	0	0	0	0	0	0	0	0	0	0	0	2	0	3	0	0	0	0
22-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
23-Jun	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
24-Jun	0	1	0	1	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0
25-Jun	1	2	3	0	0	0	0	0	0	0	0	0	1	0	1	1	0	0	0	0
26-Jun	1	2	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
27-Jun	0	0	1	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
28-Jun	1	0	0	2	0	0	0	0	0	0	0	2	1	0	1	1	0	0	0	0
29-Jun	1	1	1	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0
30-Jun	1	0	0	1	0	0	0	0	1	0	3	1	0	0	0	2	0	0	0	0
01-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0
02-Jul	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0
03-Jul	0	0	0	0	0	0	0	0	1	0	0	2	0	2	2	5	0	0	0	0
04-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	2	3	7	0	0	0	0
05-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	3	1	6	0	0	0	0
06-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3	0	0	0	0
07-Jul	0	0	2	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
08-Jul	1	1	1	2	0	0	0	0	0	0	1	1	0	1	0	2	0	0	0	0
09-Jul	3	2	1	1	0	0	0	0	0	0	0	4	0	0	0	2	0	0	0	0
10-Jul	1	0	0	2	0	0	0	0	0	0	0	1	0	0	1	6	0	0	0	0
11-Jul	1	0	1	0	0	0	0	0	0	0	0	0	1	0	0	2	0	0	0	0
12-Jul	2	0	1	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0
13-Jul	1	0	0	0	0	0	0	0	0	0	4	2	0	0	0	1	0	0	0	0

Table B-7. Catches of non-salmonids captured in the Nass River fishwheels, 1998.

Date	Whitefish				Long nose sucker				Northern squawfish				Pacific Lamprey				Prickley Sculpin			
	FW1	FW2	FW3	FW4	FW1	FW2	FW3	FW4	FW1	FW2	FW3	FW4	FW1	FW2	FW3	FW4	FW1	FW2	FW3	FW4
14-Jul	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15-Jul	0	0	1	1	0	0	0	0	0	0	3	0	0	0	0	1	0	0	0	0
16-Jul	1	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
17-Jul	0	0	2	0	0	0	0	0	1	0	1	0	0	0	0	1	0	0	0	0
18-Jul	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
19-Jul	1	0	1	0	0	0	0	0	0	0	1	4	0	0	0	0	0	0	0	0
20-Jul	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
21-Jul	2	0	1	1	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0
22-Jul	1	0	2	1	1	0	1	1	0	0	0	1	0	0	0	4	0	0	0	0
23-Jul	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	3	0	0	0	0
24-Jul	0	0	0	0	0	0	0	2	0	0	0	1	0	0	0	4	0	0	0	0
25-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0	0	0	0
26-Jul	0	0	0	0	0	0	0	0	0	0	1	3	0	0	3	1	0	0	0	0
27-Jul	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	4	0	0	0	0
28-Jul	0	0	0	0	0	0	0	1	0	0	0	1	0	0	1	2	0	0	0	0
29-Jul	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	2	0	0	0	0
30-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	1	0	0	0	0
31-Jul	0	0	1	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
01-Aug	0	0	2	0	0	0	0	0	0	0	0	1	0	0	2	4	0	0	0	0
02-Aug	0	0	1	1	0	0	0	4	0	0	0	0	1	0	0	0	0	0	0	0
03-Aug	0	0	0	0	0	0	3	0	0	0	0	1	0	0	0	1	0	0	0	0
04-Aug	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	2	0	0	0	2
05-Aug	0	0	0	1	0	0	0	2	0	0	0	0	0	0	0	4	0	0	0	0
06-Aug	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
07-Aug	0	2	0	1	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	1
08-Aug	1	0	0	3	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0
09-Aug	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
10-Aug	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2	1	0	0	0	0
11-Aug	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0
12-Aug	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0	0	0	0
13-Aug	0	0	0	1	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0
14-Aug	0	0	0	1	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0

Table B-7. Catches of non-salmonids captured in the Nass River fishwheels, 1998.

Date	Whitefish				Long nose sucker				Northern squawfish				Pacific Lamprey				Prickley Sculpin			
	FW1	FW2	FW3	FW4	FW1	FW2	FW3	FW4	FW1	FW2	FW3	FW4	FW1	FW2	FW3	FW4	FW1	FW2	FW3	FW4
15-Aug	0	0	0	2	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0
16-Aug	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	4	0	0	0	0
17-Aug	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	0	0	0	2
18-Aug	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	8	0	0	0	2
19-Aug	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2	0	0	0	0
20-Aug	0	1	1	3	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	1
21-Aug	1	0	0	1	0	0	1	0	0	0	1	3	0	0	0	2	0	0	0	0
22-Aug	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	4	0	0	0	0
23-Aug	0	0	0	1	0	0	0	1	0	0	0	2	0	0	0	1	0	0	0	1
24-Aug	0	0	0	0	0	0	0	3	0	0	0	1	0	0	0	1	1	0	0	3
25-Aug	2	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
26-Aug	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	1	0	0	0	1
27-Aug	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
28-Aug	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	6
29-Aug	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0
30-Aug	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31-Aug	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
01-Sep	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	3
02-Sep	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
03-Sep	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2
04-Sep	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
05-Sep	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	5
06-Sep	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0
07-Sep	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	3
08-Sep	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
09-Sep	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10-Sep	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11-Sep	1	0	0	3	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	3
12-Sep	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2
13-Sep	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	1
14-Sep	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0
15-Sep	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2

Table B-7. Catches of non-salmonids captured in the Nass River fishwheels, 1998.

	Whitefish				Long nose sucker				Northern squawfish				Pacific Lamprey				Prickley Sculpin			
Date	FW1	FW2	FW3	FW4	FW1	FW2	FW3	FW4	FW1	FW2	FW3	FW4	FW1	FW2	FW3	FW4	FW1	FW2	FW3	FW4
16-Sep	3	0	0	1	0	0	0	2	0	0	0	2	0	0	0	0	0	0	0	2
17-Sep	4	0	0	1	0	0	0	1	0	0	0	2	0	0	0	0	0	0	0	1
18-Sep	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
19-Sep	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
20-Sep	0	0	1	6	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
21-Sep	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22-Sep	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
23-Sep	0	0	2	2	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	3
24-Sep	0	0	0	2	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0
25-Sep	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
26-Sep	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
27-Sep	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
28-Sep	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29-Sep	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3
30-Sep	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01-Oct	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
02-Oct	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0
03-Oct	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
04-Oct	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05-Oct	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
06-Oct	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07-Oct	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08-Oct	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
09-Oct	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10-Oct	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11-Oct	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
12-Oct	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13-Oct	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	38	15	33	54	1	0	7	30	5	2	22	55	7	15	36	136	2	0	2	65

Table B-8. Daily catches of Pacific salmon smolts captured in the Nass River fishwheels, 1998.

Date	Chinook					Coho					Steelhead				
	FW1	FW2	FW3	FW4	Total	FW1	FW2	FW3	FW4	Total	FW1	FW2	FW3	FW4	Total
12-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15-Jun	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
16-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17-Jun	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0
18-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21-Jun	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0
22-Jun	0	0	0	0	0	1	0	0	1	2	0	0	0	0	0
23-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26-Jun	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0
27-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28-Jun	0	0	0	0	0	1	0	0	0	1	0	0	0	1	1
29-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
30-Jun	1	0	0	0	1	1	0	0	0	1	0	0	0	0	0
01-Jul	0	0	0	0	0	1	0	0	0	1	0	0	1	0	1
02-Jul	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0
03-Jul	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
04-Jul	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0
05-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06-Jul	0	0	0	0	0	0	0	0	1	1	0	0	0	1	1
07-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08-Jul	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0
09-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
13-Jul	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0

Table B-8. Daily catches of Pacific salmon smolts captured in the Nass River fishwheels, 1998.

Date	Chinook					Coho					Steelhead				
	FW1	FW2	FW3	FW4	Total	FW1	FW2	FW3	FW4	Total	FW1	FW2	FW3	FW4	Total
14-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15-Jul	0	0	0	2	2	0	0	0	0	0	1	0	0	0	1
16-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17-Jul	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
18-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19-Jul	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0
20-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22-Jul	0	0	0	0	0	1	0	0	0	1	0	0	0	1	1
23-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24-Jul	2	0	0	0	2	0	0	0	1	1	0	0	0	1	1
25-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
28-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31-Jul	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
01-Aug	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2
02-Aug	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03-Aug	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04-Aug	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05-Aug	0	0	0	0	0	0	0	0	1	1	1	0	1	0	2
06-Aug	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07-Aug	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
08-Aug	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09-Aug	1	0	0	0	1	0	0	0	1	1	0	0	0	0	0
10-Aug	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11-Aug	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Aug	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
13-Aug	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14-Aug	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table B-8. Daily catches of Pacific salmon smolts captured in the Nass River fishwheels, 1998.

	Chinook					Coho					Steelhead				
Date	FW1	FW2	FW3	FW4	Total	FW1	FW2	FW3	FW4	Total	FW1	FW2	FW3	FW4	Total
15-Aug	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
16-Aug	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17-Aug	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18-Aug	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
19-Aug	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20-Aug	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21-Aug	0	0	0	0	0	0	0	1	1	2	0	0	1	0	1
22-Aug	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
23-Aug	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
24-Aug	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25-Aug	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0
26-Aug	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27-Aug	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
28-Aug	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29-Aug	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30-Aug	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31-Aug	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01-Sep	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2
02-Sep	0	0	0	0	0	0	0	0	1	1	0	0	1	0	1
03-Sep	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04-Sep	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
05-Sep	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06-Sep	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07-Sep	0	0	0	0	0	0	0	0	1	1	0	0	0	2	2
08-Sep	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09-Sep	0	0	0	0	0	0	0	0	0	0	1	0	0	5	6
10-Sep	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
11-Sep	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
12-Sep	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13-Sep	0	0	0	0	0	0	0	0	0	0	0	0	1	2	3
14-Sep	0	0	0	0	0	0	0	1	0	1	0	0	0	1	1
15-Sep	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1

Table B-8. Daily catches of Pacific salmon smolts captured in the Nass River fishwheels, 1998.

	Chinook					Coho					Steelhead				
Date	FW1	FW2	FW3	FW4	Total	FW1	FW2	FW3	FW4	Total	FW1	FW2	FW3	FW4	Total
16-Sep	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17-Sep	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
18-Sep	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19-Sep	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20-Sep	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21-Sep	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22-Sep	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23-Sep	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24-Sep	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25-Sep	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26-Sep	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27-Sep	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28-Sep	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29-Sep	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30-Sep	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01-Oct	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
02-Oct	0	0	0	0	0	0	0	0	0	0	0	0	0	5	5
03-Oct	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2
04-Oct	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05-Oct	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06-Oct	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
07-Oct	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
08-Oct	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
09-Oct	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0
10-Oct	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
11-Oct	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Oct	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13-Oct	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	6	0	0	2	8	6	0	5	12	23	5	2	11	39	57

APPENDIX C

Summaries of recovery data for fish tagged at the Nass River fishwheels, 1998

Table C-1. Summary statistics of travel time data for chinook, sockeye and coho salmon tagged at the Nass River fishwheels, 1998.

Recapture	Fish tagged at fishwheel 1									Fish tagged at fishwheel 2									Both fishwheels combined								
	Chinook			Sockeye			Coho			Chinook			Sockeye			Coho			Chinook			Sockeye			Coho		
Location	N	Mean	SD[a]	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD
Fishwheel 1	-	-	-	11	0.9	2.1	63	4.1	3.6	21	3.4	3.5	34	1.1	1.3	35	5.0	5.0	21	3.4	3.5	45	1.0	1.5	98	4.4	4.1
Fishwheel 2	4	6.8	8.3	10	0.8	0.6	24	7.8	8.2	11	5.2	4.7	16	2.4	3.0	1	3.0		15	5.6	5.6	26	1.8	2.5	25	7.6	8.1
Fishwheel 3	10	9.2	6.0	37	5.7	6.5	27	13.1	7.1	27	10.7	5.2	77	5.0	3.3	8	7.9	3.3	37	10.3	5.4	114	5.2	4.6	35	11.9	6.8
Fishwheel 4	9	11.7	6.7	31	10.2	11.6	87	12.1	6.8	18	13.3	8.2	49	5.6	3.5	31	12.9	9.6	27	12.7	7.6	80	7.3	8.0	118	12.3	7.6
Meziadin	2	73.5	7.8	450	23.2	7.3	43	39.9	11.4	1	50.0		1081	22.2	7.0	9	31.7	7.4	3	65.7	14.6	1531	22.5	7.1	52	38.4	11.2
Totals	25			539			244			78			1257			84			103			1796			328		

[a] Standard deviation

Table C-2. Travel time information for recoveries of tagged chinook salmon by location tagged and location recovered, 1998.

Travel time (d)	Fish tagged at fishwheel 1						Fish tagged at fishwheel 2						Fish tagged at fishwheel 3			Fish tagged at fishwheel 4				Grand Total
	Location recovered																			
	Fw1	Fw2	Fw3	Fw4	Mez	Total	Fw1	Fw2	Fw3	Fw4	Mez	Total	Fw3	Fw4	Total	Fw3	Fw4	Mez	Total	
<1		1				1	4	3				7	3		3				0	11
1		1				1	5					5	1		1				0	7
2			2			2	4	1	1			6		3	3				0	11
3						0	1	2	1	2		6		1	1	1			1	8
4			1	1		2				1		1	1		1				0	4
5				1		1						0	1	1	2				0	3
6				1		1	1		3			4		1	1				0	6
7						0	2	1	3	1		7			0	1			1	8
8		1	1			2	1		1	2		4			0	1			1	7
9			2			2	2	1	6	2		11			0				0	13
10				1		1	1	1	1	1		4			0	2			2	7
11			1	1		2		1	1			2			0				0	4
12			1	1		2		1	2	1		4		1	1		1		1	8
13			1	1		2			1	1		2			0		1		1	5
14						0			1	1		2	1		1				0	3
15						0			1			1		1	1				0	2
16						0			1			1		2	2		1		1	4
17						0			1			1	1	1	2		1		1	4
18		1				1				1		1		1	1				0	3
19						0			1	1		2			0				0	2
20						0						0		1	1				0	1
21						0			1			1	1		1		1		1	3
22			1	2		3				1		1			0				0	4
23						0			1			1	1		1				0	2
24						0				1		1			0	1			1	2
25						0				1		1			0				0	1
30						0						0			0		1		1	1
31						0				1		1	1		1				0	2
50						0					1	1			0				0	0
56						0						0			0			1	1	2
68					1	1						0			0				0	0
79					1	1						0			0				0	0
Totals	0	4	10	9	2	25	21	11	27	18	1	78	11	13	24	6	6	1	13	140

Table C-3. Travel time information for recoveries of tagged sockeye salmon by location tagged and location recovered, 1998.

Travel time (d)	Fish tagged at fishwheel 1						Fish tagged at fishwheel 2						Grand Total
	Location recovered												
	Fw1	Fw2	Fw3	Fw4	Mez	Total	Fw1	Fw2	Fw3	Fw4	Mez	Total	
<1	7	3				10	14	6				20	30
1	3	6	2			11	11	3	1			15	26
2		1	7	2		10	3	1	6	4		14	24
3			8	4		12	5	2	20	13		40	52
4			3	6		9		1	18	6		25	34
5			4	1		5	1		12	10		23	28
6			3	3		6		1	6	2		9	15
7	1		1	2		4			5			5	9
8			4	2		6		1	2	7		10	16
9			2			2		1	1	2	1	5	7
10				1		1			1	2	3	6	7
11				4	6	10				1	5	6	16
12			1		6	7			3		13	16	23
13			1		13	14				1	26	27	41
14					15	15					45	45	60
15					11	11					55	55	66
16				1	17	18			1		50	51	69
17				1	26	27					69	69	96
18					31	31					75	75	106
19				1	21	22					76	76	98
20					34	34					73	73	107
21					34	34				1	77	78	112
22					24	24			1		85	86	110
23					27	27					59	59	86
24					17	17					56	56	73
25				1	25	26					53	53	79
26					15	15					52	52	67
27					23	23					36	36	59
28					22	22					34	34	56
29					11	11					24	24	35
30				1	8	9					14	14	23
31					18	18					8	8	26
32					8	8					16	16	24
33					9	9					10	10	19
34					3	3					7	7	10
35					3	3					8	8	11
36					6	6					8	8	14
37					1	1					5	5	6
38						0					3	3	3
39						0					4	4	4
40			1			1					2	2	3
41					3	3					3	3	6
42					2	2					7	7	9

Table C-3. Travel time information for recoveries of tagged sockeye salmon by location tagged and location recovered, 1998.

Travel time (d)	Fish tagged at fishwheel 1						Fish tagged at fishwheel 2						Grand Total
	Location recovered												
	Fw1	Fw2	Fw3	Fw4	Mez	Total	Fw1	Fw2	Fw3	Fw4	Mez	Total	
43					2	2					5	5	7
45					2	2						0	2
46						0					2	2	2
47					1	1						0	1
48					2	2					4	4	6
49						0					1	1	1
50						0					1	1	1
51					2	2						0	2
52						0					1	1	1
53						0					1	1	1
57					1	1					1	1	2
60					1	1					1	1	2
61				1		1						0	1
62						0					1	1	1
72						0					1	1	1
Totals	11	10	37	31	450	539	34	16	77	49	1081	1257	1796

Table C-4. Travel time information for recoveries of tagged coho salmon by location tagged and location recovered, 1998.

Travel time (d)	Fish tagged at fishwheel 1						Fish tagged at fishwheel 2						Fish tagged at fishwheel 3						Fish tagged at fishwheel 4						Grand Total
	Location recovered																								
	Fw1	Fw2	Fw3	Fw4	Mez	Total	Fw1	Fw2	Fw3	Fw4	Mez	Total	Fw1	Fw2	Fw3	Fw4	Mez	Total	Fw1	Fw2	Fw3	Fw4	Mez	Total	
<1	7	3				10	6					6				2		2				9		9	27
1	9	3				12	4					4				5		5		2	1	6		9	30
2	7	1	1	1		10	4					4			2	2		4						0	18
3	10	1	3	2		16	3	1	1	1		6			1	4		5			1	3		4	31
4	9	2		6		17	2			1		3				5		5	1		2	1		4	29
5	6	2	3	3		14	5		1			6				4		4		1	1	2		4	28
6				4		4	2		1	3		6				1		1			2	4		6	17
7	5	1		6		12	1		1	7		9						0			1	1		2	23
8	4	2		5		11			1	2		3				1		1			2	5	1	8	23
9	3	1	1	6		11	2			1		3			1	1		2						0	16
10	1	2	1	7		11	2		1	1		4						0	1			4		5	20
11			1	7		8			1	1		2			1	3		4				4		4	18
12		3	3	7		13	1			2		3						0			1			1	17
13		1	3	8		12			1	2		3			1			1				2		2	18
14	1			3		4				1		1						0						0	5
15				2		2						0						0				1		1	3
16			2	4		6	1			1		2	1					1				1		1	10
17				2		2	1			2		3						0				2		2	7
18				1		1	1			1		2	1			1	2	4				1	2	3	10
19	1			2		3				1		1				2	2	4					1	1	9
20			6	2		8				1		1			1		1	2				1		1	12
21			2	3		5						0				1		1				1		1	7
22						0					1	1						0					1	1	2
23						0				1		1						0			1			1	2
24					1	1						0						0						0	1
25				1	3	4					1	1						0						0	5
26				2		2						0				1		1				1	1	2	5
27				1	1	2					1	1				1	1	2			1	1	1	3	8
28			1		1	2					1	1						0					1	1	4
29		1			1	2						0						0					1	1	3
30					4	4					1	1					2	2					4	4	11

Table C-4. Travel time information for recoveries of tagged coho salmon by location tagged and location recovered, 1998.

Travel time (d)	Fish tagged at fishwheel 1						Fish tagged at fishwheel 2						Fish tagged at fishwheel 3						Fish tagged at fishwheel 4						Grand Total
	Location recovered																								
	Fw1	Fw2	Fw3	Fw4	Mez	Total	Fw1	Fw2	Fw3	Fw4	Mez	Total	Fw1	Fw2	Fw3	Fw4	Mez	Total	Fw1	Fw2	Fw3	Fw4	Mez	Total	
31					2	2						0						0					1	1	3
32		1			4	5						0					1	1					1	1	7
33						0					1	1					1	1					1	1	3
34					1	1					1	1					2	2						0	4
35					1	1				1		1						0				1		1	3
36					1	1						0						0						0	1
37				2	1	3						0						0					1	1	4
38					1	1						0						0						0	1
39					2	2						0					1	1					1	1	4
40					1	1						0						0				1	1	2	3
41					1	1						0					1	1					3	3	5
42						0					1	1						0				1		1	2
43					3	3						0					1	1						0	4
44						0					1	1						0					1	1	2
45					1	1						0					1	1						0	2
46						0						0					1	1						0	1
48					2	2						0						0						0	2
49					2	2						0						0						0	2
50						0				1		1						0					1	1	2
52					2	2						0						0						0	2
53					1	1						0						0						0	1
54						0						0						0					1	1	1
56					2	2						0						0						0	2
58					1	1						0					1	1						0	2
59						0						0						0					1	1	1
61					1	1						0						0						0	1
62					1	1						0						0						0	1
64					1	1						0						0						0	1
Totals	63	24	27	87	43	244	35	1	8	31	9	84	2	0	7	34	18	61	2	3	13	53	26	97	486

APPENDIX D

Daily counts of salmon at the Meziadin fishway and in-season sockeye escapement estimates, 1998

Table D-1. Daily counts of sockeye salmon through the Meziadin fishway, 28 June to 22 October 1998.

	Adults		Jacks		All sockeye		No. of tags counted		Recovered	Portion	Portion of adults tagged	
Date	Daily	Cum.	Daily	Cum.	Daily	Cum.	Total	Cum.	tags	recovered	Daily	Cum.
28-Jun	0	0	0	0	0	0	0	0	0			
29-Jun	19	19	1	1	20	20	1	1	0	0.00	0.053	0.053
30-Jun	39	58	0	1	39	59	0	1	0		0.000	0.017
01-Jul	93	151	0	1	93	152	0	1	0		0.000	0.007
02-Jul	106	257	1	2	107	259	1	2	0	0.00	0.009	0.008
03-Jul	219	476	0	2	219	478	6	8	3	0.50	0.027	0.017
04-Jul	173	649	1	3	174	652	2	10	2	1.00	0.012	0.015
05-Jul	135	784	1	4	136	788	0	10	0		0.000	0.013
06-Jul	99	883	0	4	99	887	1	11	1	1.00	0.010	0.012
07-Jul	320	1,203	0	4	320	1207	1	12	1	1.00	0.003	0.010
08-Jul	849	2,052	0	4	849	2056	8	20	7	0.88	0.009	0.010
09-Jul	2,390	4,442	0	4	2390	4446	15	35	12	0.80	0.006	0.008
10-Jul	8,265	12,707	4	8	8269	12715	73	108	50	0.68	0.009	0.008
11-Jul	4,310	17,017	2	10	4312	17027	50	158	34	0.68	0.012	0.009
12-Jul	1,696	18,713	1	11	1697	18724	19	177	9	0.47	0.011	0.009
13-Jul	1,610	20,323	3	14	1613	20337	20	197	20	1.00	0.012	0.010
14-Jul	1,431	21,754	2	16	1433	21770	13	210	12	0.92	0.009	0.010
15-Jul	1,085	22,839	1	17	1086	22856	17	227	14	0.82	0.016	0.010
16-Jul	1,515	24,354	8	25	1523	24379	21	248	17	0.81	0.014	0.010
17-Jul	2,255	26,609	8	33	2263	26642	48	296	39	0.81	0.021	0.011
18-Jul	2,462	29,071	12	45	2474	29116	39	335	37	0.95	0.016	0.012
19-Jul	4,006	33,077	43	88	4049	33165	93	428	50	0.54	0.023	0.013
20-Jul	3,322	36,399	38	126	3360	36525	61	489	51	0.84	0.018	0.013
21-Jul	3,510	39,909	31	157	3541	40066	90	579	50	0.56	0.026	0.015
22-Jul	3,653	43,562	35	192	3688	43754	92	671	60	0.65	0.025	0.015
23-Jul	2,704	46,266	42	234	2746	46500	58	729	52	0.90	0.021	0.016
24-Jul	2,036	48,302	40	274	2076	48576	41	770	32	0.78	0.020	0.016
25-Jul	1,705	50,007	29	303	1734	50310	36	806	26	0.72	0.021	0.016
26-Jul	1,522	51,529	23	326	1545	51855	40	846	32	0.80	0.026	0.016
27-Jul	1,198	52,727	35	361	1233	53088	19	865	19	1.00	0.016	0.016
28-Jul	612	53,339	16	377	628	53716	21	886	15	0.71	0.034	0.017

Table D-1. Daily counts of sockeye salmon through the Meziadin fishway, 28 June to 22 October 1998.

Date	Adults		Jacks		All sockeye		No. of tags counted		Recovered tags	Portion recovered	Portion of adults tagged	
	Daily	Cum.	Daily	Cum.	Daily	Cum.	Total	Cum.			Daily	Cum.
29-Jul	455	53,794	20	397	475	54191	9	895	9	1.00	0.020	0.017
30-Jul	299	54,093	12	409	311	54502	5	900	5	1.00	0.017	0.017
31-Jul	447	54,540	12	421	459	54961	8	908	8	1.00	0.018	0.017
01-Aug	1,121	55,661	35	456	1156	56117	9	917	9	1.00	0.008	0.016
02-Aug	1,981	57,642	51	507	2032	58149	31	948	26	0.84	0.016	0.016
03-Aug	1,535	59,177	46	553	1581	59730	23	971	21	0.91	0.015	0.016
04-Aug	2,600	61,777	119	672	2719	62449	41	1,012	33	0.80	0.016	0.016
05-Aug	2,506	64,283	114	786	2620	65069	26	1,038	25	0.96	0.010	0.016
06-Aug	2,265	66,548	72	858	2337	67406	34	1,072	30	0.88	0.015	0.016
07-Aug	2,805	69,353	60	918	2865	70271	38	1,110	36	0.95	0.014	0.016
08-Aug	3,125	72,478	46	964	3171	73442	26	1,136	24	0.92	0.008	0.016
09-Aug	2,195	74,673	60	1,024	2255	75697	19	1,155	19	1.00	0.009	0.015
10-Aug	695	75,368	22	1,046	717	76414	9	1,164	8	0.89	0.013	0.015
11-Aug	250	75,618	11	1,057	261	76675	2	1,166	2	1.00	0.008	0.015
12-Aug	351	75,969	14	1,071	365	77040	6	1,172	6	1.00	0.017	0.015
13-Aug	515	76,484	20	1,091	535	77575	3	1,175	3	1.00	0.006	0.015
14-Aug	1,351	77,835	37	1,128	1388	78963	7	1,182	7	1.00	0.005	0.015
15-Aug	1,153	78,988	35	1,163	1188	80151	11	1,193	10	0.91	0.010	0.015
16-Aug	839	79,827	30	1,193	869	81020	1	1,194	0	0.00	0.001	0.015
17-Aug	4,619	84,446	137	1,330	4756	85776	21	1,215	17	0.81	0.005	0.014
18-Aug	5,789	90,235	215	1,545	6004	91780	39	1,254	35	0.90	0.007	0.014
19-Aug	3,903	94,138	248	1,793	4151	95931	30	1,284	24	0.80	0.008	0.014
20-Aug	3,794	97,932	173	1,966	3967	99898	33	1,317	30	0.91	0.009	0.013
21-Aug	6,432	104,364	460	2,426	6892	106790	38	1,355	34	0.89	0.006	0.013
22-Aug	4,364	108,728	313	2,739	4677	111467	32	1,387	31	0.97	0.007	0.013
23-Aug	5,556	114,284	242	2,981	5798	117265	30	1,417	24	0.80	0.005	0.012
24-Aug	4,469	118,753	153	3,134	4622	121887	31	1,448	29	0.94	0.007	0.012
25-Aug	7,396	126,149	142	3,276	7538	129425	22	1,470	16	0.73	0.003	0.012
26-Aug	5,940	132,089	313	3,589	6253	135678	47	1,517	42	0.89	0.008	0.011
27-Aug	3,809	135,898	195	3,784	4004	139682	30	1,547	29	0.97	0.008	0.011
28-Aug	2,963	138,861	143	3,927	3106	142788	23	1,570	21	0.91	0.008	0.011

Table D-1. Daily counts of sockeye salmon through the Meziadin fishway, 28 June to 22 October 1998.

	Adults		Jacks		All sockeye		No. of tags counted		Recovered	Portion	Portion of adults tagged	
Date	Daily	Cum.	Daily	Cum.	Daily	Cum.	Total	Cum.	tags	recovered	Daily	Cum.
29-Aug	2,513	141,374	93	4,020	2606	145394	16	1,586	15	0.94	0.006	0.011
30-Aug	447	141,821	16	4,036	463	145857	6	1,592	4	0.67	0.013	0.011
31-Aug	627	142,448	38	4,074	665	146522	4	1,596	3	0.75	0.006	0.011
01-Sep	789	143,237	59	4,133	848	147370	7	1,603	7	1.00	0.009	0.011
02-Sep	759	143,996	61	4,194	820	148190	5	1,608	4	0.80	0.007	0.011
03-Sep	821	144,817	52	4,246	873	149063	5	1,613	5	1.00	0.006	0.011
04-Sep	1,071	145,888	72	4,318	1143	150206	11	1,624	10	0.91	0.010	0.011
05-Sep	2,193	148,081	150	4,468	2343	152549	17	1,641	17	1.00	0.008	0.011
06-Sep	2,114	150,195	117	4,585	2231	154780	26	1,667	25	0.96	0.012	0.011
07-Sep	1,983	152,178	123	4,708	2106	156886	21	1,688	20	0.95	0.011	0.011
08-Sep	1,186	153,364	118	4,826	1304	158190	15	1,703	12	0.80	0.013	0.011
09-Sep	638	154,002	103	4,929	741	158931	9	1,712	8	0.89	0.014	0.011
10-Sep	563	154,565	56	4,985	619	159550	3	1,715	2	0.67	0.005	0.011
11-Sep	1,248	155,813	158	5,143	1406	160956	13	1,728	12	0.92	0.010	0.011
12-Sep	1,070	156,883	127	5,270	1197	162153	14	1,742	13	0.93	0.013	0.011
13-Sep	526	157,409	66	5,336	592	162745	7	1,749	6	0.86	0.013	0.011
14-Sep	444	157,853	36	5,372	480	163225	6	1,755	4	0.67	0.014	0.011
15-Sep	412	158,265	66	5,438	478	163703	4	1,759	4	1.00	0.010	0.011
16-Sep	590	158,855	52	5,490	642	164345	7	1,766	6	0.86	0.012	0.011
17-Sep	420	159,275	50	5,540	470	164815	7	1,773	7	1.00	0.017	0.011
18-Sep	460	159,735	34	5,574	494	165309	6	1,779	6	1.00	0.013	0.011
19-Sep	516	160,251	38	5,612	554	165863	16	1,795	15	0.94	0.031	0.011
20-Sep	473	160,724	52	5,664	525	166388	10	1,805	8	0.80	0.021	0.011
21-Sep	574	161,298	70	5,734	644	167032	9	1,814	8	0.89	0.016	0.011
22-Sep	452	161,750	76	5,810	528	167560	5	1,819	5	1.00	0.011	0.011
23-Sep	337	162,087	48	5,858	385	167945	11	1,830	10	0.91	0.033	0.011
24-Sep	334	162,421	43	5,901	377	168322	6	1,836	6	1.00	0.018	0.011
25-Sep	339	162,760	47	5,948	386	168708	10	1,846	9	0.90	0.029	0.011
26-Sep	223	162,983	30	5,978	253	168961	9	1,855	9	1.00	0.040	0.011
27-Sep	197	163,180	46	6,024	243	169204	7	1,862	6	0.86	0.036	0.011
28-Sep	151	163,331	42	6,066	193	169397	2	1,864	0	0.00	0.013	0.011

Table D-1. Daily counts of sockeye salmon through the Meziadin fishway, 28 June to 22 October 1998.

	Adults		Jacks		All sockeye		No. of tags counted		Recovered	Portion	Portion of adults tagged	
Date	Daily	Cum.	Daily	Cum.	Daily	Cum.	Total	Cum.	tags	recovered	Daily	Cum.
29-Sep	20	163,351	6	6,072	26	169423	0	1,864	0		0.000	0.011
30-Sep	83	163,434	8	6,080	91	169514	2	1,866	1	0.50	0.024	0.011
01-Oct	169	163,603	20	6,100	189	169703	3	1,869	1	0.33	0.018	0.011
02-Oct	35	163,638	5	6,105	40	169743	0	1,869	0		0.000	0.011
03-Oct	22	163,660	6	6,111	28	169771	0	1,869	0		0.000	0.011
04-Oct	46	163,706	11	6,122	57	169828	1	1,870	0	0.00	0.022	0.011
05-Oct	31	163,737	4	6,126	35	169863	0	1,870	0		0.000	0.011
06-Oct	51	163,788	3	6,129	54	169917	0	1,870	0		0.000	0.011
07-Oct	12	163,800	3	6,132	15	169932	0	1,870	0		0.000	0.011
08-Oct	22	163,822	8	6,140	30	169962	0	1,870	0		0.000	0.011
09-Oct	10	163,832	1	6,141	11	169973	1	1,871	1	1.00	0.100	0.011
10-Oct	13	163,845	7	6,148	20	169993	1	1,872	1	1.00	0.077	0.011
11-Oct	10	163,855	4	6,152	14	170007	0	1,872	0		0.000	0.011
12-Oct	26	163,881	4	6,156	30	170037	0	1,872	0		0.000	0.011
13-Oct	14	163,895	0	6,156	14	170051	0	1,872	0		0.000	0.011
14-Oct	9	163,904	2	6,158	11	170062	1	1,873	1	1.00	0.111	0.011
15-Oct	9	163,913	2	6,160	11	170073	0	1,873	0		0.000	0.011
16-Oct	3	163,916	0	6,160	3	170076	0	1,873	0		0.000	0.011
17-Oct	9	163,925	1	6,161	10	170086	0	1,873	0		0.000	0.011
18-Oct	7	163,932	1	6,162	8	170094	0	1,873	0		0.000	0.011
19-Oct	1	163,933	1	6,163	2	170096	0	1,873	0		0.000	0.011
20-Oct	17	163,950	5	6,168	22	170118	0	1,873	0		0.000	0.011
21-Oct	43	163,993	10	6,178	53	170171	2	1,875	2	1.00	0.047	0.011
22-Oct	5	163,998	1	6,179	6	170177	0	1,875	0		0.000	0.011
Total	163,998		6,179		170,177		1,875		1,531	0.82	0.011	

Table D-2. Daily counts of chinook, coho, steelhead and pink salmon through the Meziadin fishway, 28 June to 22 October 1998.

	Chinook							Coho											
	Adults		Tags		Cumulative	Jacks		Adults		Tags		Portion tagged		Jacks		Steelhead		Pink	
Date	Daily	Cum.	Daily	Cum.	portion tagged	Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily	Cum.
28-Jun	0	0	0	0		0	0	0	0	0	0			0	0	0	0	0	0
29-Jun	0	0	0	0		0	0	0	0	0	0			0	0	0	0	0	0
30-Jun	0	0	0	0		0	0	0	0	0	0			0	0	0	0	0	0
01-Jul	0	0	0	0		0	0	0	0	0	0			0	0	0	0	0	0
02-Jul	1	1	0	0	0.000	0	0	0	0	0	0			0	0	0	0	0	0
03-Jul	0	1	0	0	0.000	0	0	0	0	0	0			0	0	0	0	0	0
04-Jul	0	1	0	0	0.000	0	0	0	0	0	0			0	0	0	0	0	0
05-Jul	0	1	0	0	0.000	0	0	0	0	0	0			0	0	0	0	0	0
06-Jul	1	2	0	0	0.000	0	0	0	0	0	0			0	0	0	0	0	0
07-Jul	1	3	0	0	0.000	0	0	0	0	0	0			0	0	0	0	0	0
08-Jul	1	4	0	0	0.000	0	0	0	0	0	0			0	0	0	0	0	0
09-Jul	1	5	0	0	0.000	0	0	0	0	0	0			0	0	0	0	0	0
10-Jul	7	12	0	0	0.000	0	0	0	0	0	0			0	0	0	0	0	0
11-Jul	6	18	0	0	0.000	0	0	0	0	0	0			0	0	0	0	0	0
12-Jul	2	20	0	0	0.000	0	0	0	0	0	0			0	0	0	0	0	0
13-Jul	4	24	0	0	0.000	0	0	0	0	0	0			0	0	0	0	0	0
14-Jul	16	40	0	0	0.000	0	0	0	0	0	0			0	0	0	0	0	0
15-Jul	5	45	0	0	0.000	0	0	0	0	0	0			0	0	0	0	0	0
16-Jul	3	48	0	0	0.000	0	0	0	0	0	0			0	0	0	0	0	0
17-Jul	15	63	0	0	0.000	0	0	0	0	0	0			0	0	0	0	0	0
18-Jul	14	77	0	0	0.000	0	0	0	0	0	0			0	0	0	0	0	0
19-Jul	12	89	0	0	0.000	1	1	0	0	0	0			0	0	0	0	0	0
20-Jul	7	96	0	0	0.000	0	1	0	0	0	0			0	0	0	0	0	0
21-Jul	3	99	0	0	0.000	0	1	0	0	0	0			0	0	0	0	0	0
22-Jul	4	103	0	0	0.000	1	2	0	0	0	0			0	0	0	0	0	0
23-Jul	5	108	0	0	0.000	2	4	0	0	0	0			0	0	0	0	0	0
24-Jul	4	112	0	0	0.000	2	6	0	0	0	0			0	0	0	0	0	0
25-Jul	3	115	1	1	0.009	0	6	0	0	0	0			0	0	0	0	0	0
26-Jul	5	120	1	2	0.017	0	6	0	0	0	0			0	0	0	0	0	0
27-Jul	2	122	0	2	0.016	0	6	0	0	0	0			0	0	0	0	0	0

Table D-2. Daily counts of chinook, coho, steelhead and pink salmon through the Meziadin fishway, 28 June to 22 October 1998.

	Chinook							Coho											
	Adults		Tags		Cumulative	Jacks		Adults		Tags		Portion tagged		Jacks		Steelhead		Pink	
Date	Daily	Cum.	Daily	Cum.	portion tagged	Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily	Cum.
28-Jul	1	123	0	2	0.016	0	6	0	0	0	0			0	0	0	0	0	0
29-Jul	2	125	0	2	0.016	0	6	0	0	0	0			0	0	0	0	0	0
30-Jul	2	127	0	2	0.016	0	6	0	0	0	0			0	0	0	0	0	0
31-Jul	3	130	0	2	0.015	0	6	0	0	0	0			0	0	0	0	0	0
01-Aug	2	132	0	2	0.015	0	6	0	0	0	0			0	0	0	0	0	0
02-Aug	2	134	0	2	0.015	0	6	0	0	0	0			0	0	0	0	0	0
03-Aug	3	137	0	2	0.015	0	6	0	0	0	0			0	0	0	0	0	0
04-Aug	3	140	0	2	0.014	0	6	0	0	0	0			0	0	0	0	0	0
05-Aug	7	147	0	2	0.014	0	6	0	0	0	0			0	0	0	0	0	0
06-Aug	8	155	1	3	0.019	1	7	0	0	0	0			0	0	0	0	0	0
07-Aug	4	159	0	3	0.019	0	7	1	1	0	0	0.000	0.000	0	0	0	0	0	0
08-Aug	8	167	1	4	0.024	0	7	0	1	0	0		0.000	0	0	0	0	0	0
09-Aug	2	169	0	4	0.024	1	8	0	1	0	0		0.000	0	0	0	0	0	0
10-Aug	7	176	0	4	0.023	2	10	0	1	0	0		0.000	0	0	0	0	0	0
11-Aug	3	179	0	4	0.022	0	10	0	1	0	0		0.000	0	0	0	0	0	0
12-Aug	0	179	0	4	0.022	0	10	0	1	0	0		0.000	0	0	0	0	0	0
13-Aug	2	181	0	4	0.022	2	12	0	1	0	0		0.000	0	0	0	0	0	0
14-Aug	2	183	0	4	0.022	0	12	0	1	0	0		0.000	0	0	0	0	0	0
15-Aug	3	186	0	4	0.022	1	13	0	1	0	0		0.000	0	0	0	0	0	0
16-Aug	7	193	0	4	0.021	2	15	0	1	0	0		0.000	0	0	0	0	0	0
17-Aug	14	207	0	4	0.019	1	16	0	1	0	0		0.000	0	0	0	0	0	0
18-Aug	9	216	0	4	0.019	1	17	0	1	0	0		0.000	0	0	0	0	0	0
19-Aug	2	218	0	4	0.018	0	17	0	1	0	0		0.000	0	0	0	0	0	0
20-Aug	2	220	0	4	0.018	0	17	0	1	0	0		0.000	0	0	0	0	0	0
21-Aug	11	231	0	4	0.017	1	18	1	2	0	0	0.000	0.000	0	0	0	0	0	0
22-Aug	3	234	1	5	0.021	0	18	8	10	1	1	0.125	0.100	0	0	0	0	0	0
23-Aug	4	238	2	7	0.029	0	18	19	29	0	1	0.000	0.034	1	1	0	0	0	0
24-Aug	2	240	1	8	0.033	0	18	4	33	0	1	0.000	0.030	0	1	0	0	0	0
25-Aug	4	244	0	8	0.033	1	19	13	46	0	1	0.000	0.022	0	1	0	0	0	0
26-Aug	4	248	1	9	0.036	0	19	8	54	0	1	0.000	0.019	0	1	1	1	0	0

Table D-2. Daily counts of chinook, coho, steelhead and pink salmon through the Meziadin fishway, 28 June to 22 October 1998.

	Chinook							Coho											
	Adults		Tags		Cumulative	Jacks		Adults		Tags		Portion tagged		Jacks		Steelhead		Pink	
Date	Daily	Cum.	Daily	Cum.	portion tagged	Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily	Cum.
27-Aug	4	252	1	10	0.040	1	20	16	70	0	1	0.000	0.014	0	1	0	1	0	0
28-Aug	0	252	0	10	0.040	0	20	10	80	0	1	0.000	0.013	0	1	0	1	0	0
29-Aug	12	264	0	10	0.038	0	20	12	92	1	2	0.083	0.022	0	1	0	1	0	0
30-Aug	9	273	0	10	0.037	0	20	1	93	0	2	0.000	0.022	0	1	0	1	0	0
31-Aug	2	275	0	10	0.036	1	21	2	95	0	2	0.000	0.021	0	1	0	1	0	0
01-Sep	8	283	0	10	0.035	1	22	10	105	0	2	0.000	0.019	0	1	0	1	0	0
02-Sep	17	300	1	11	0.037	0	22	2	107	0	2	0.000	0.019	0	1	0	1	0	0
03-Sep	3	303	1	12	0.040	0	22	3	110	0	2	0.000	0.018	0	1	1	2	0	0
04-Sep	2	305	0	12	0.039	2	24	4	114	0	2	0.000	0.018	0	1	0	2	0	0
05-Sep	6	311	0	12	0.039	0	24	28	142	0	2	0.000	0.014	0	1	0	2	0	0
06-Sep	3	314	0	12	0.038	0	24	72	214	0	2	0.000	0.009	0	1	1	3	0	0
07-Sep	17	331	1	13	0.039	0	24	77	291	0	2	0.000	0.007	0	1	1	4	0	0
08-Sep	11	342	1	14	0.041	0	24	25	316	1	3	0.040	0.009	0	1	0	4	0	0
09-Sep	16	358	1	15	0.042	1	25	28	344	0	3	0.000	0.009	0	1	0	4	0	0
10-Sep	9	367	1	16	0.044	0	25	43	387	1	4	0.023	0.010	1	2	0	4	0	0
11-Sep	11	378	0	16	0.042	1	26	195	582	3	7	0.015	0.012	0	2	3	7	0	0
12-Sep	9	387	2	18	0.047	0	26	179	761	4	11	0.022	0.014	3	5	0	7	0	0
13-Sep	29	416	3	21	0.050	0	26	79	840	2	13	0.025	0.015	1	6	1	8	0	0
14-Sep	28	444	1	22	0.050	0	26	39	879	0	13	0.000	0.015	1	7	0	8	0	0
15-Sep	5	449	0	22	0.049	2	28	37	916	0	13	0.000	0.014	2	9	1	9	0	0
16-Sep	6	455	0	22	0.048	0	28	72	988	3	16	0.042	0.016	0	9	0	9	0	0
17-Sep	3	458	1	23	0.050	0	28	66	1,054	3	19	0.045	0.018	0	9	0	9	0	0
18-Sep	2	460	0	23	0.050	0	28	78	1,132	5	24	0.064	0.021	1	10	2	11	0	0
19-Sep	3	463	0	23	0.050	0	28	91	1,223	8	32	0.088	0.026	0	10	2	13	0	0
20-Sep	1	464	1	24	0.052	0	28	68	1,291	3	35	0.044	0.027	1	11	0	13	0	0
21-Sep	5	469	0	24	0.051	0	28	77	1,368	13	48	0.169	0.035	1	12	1	14	0	0
22-Sep	13	482	0	24	0.050	0	28	73	1,441	7	55	0.096	0.038	3	15	0	14	0	0
23-Sep	2	484	0	24	0.050	0	28	33	1,474	4	59	0.121	0.040	0	15	0	14	0	0
24-Sep	3	487	0	24	0.049	0	28	47	1,521	8	67	0.170	0.044	0	15	0	14	0	0
25-Sep	3	490	0	24	0.049	0	28	63	1,584	4	71	0.063	0.045	1	16	1	15	0	0

Table D-2. Daily counts of chinook, coho, steelhead and pink salmon through the Meziadin fishway, 28 June to 22 October 1998.

	Chinook							Coho											
	Adults		Tags		Cumulative	Jacks		Adults		Tags		Portion tagged		Jacks		Steelhead		Pink	
Date	Daily	Cum.	Daily	Cum.	portion tagged	Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily	Cum.
26-Sep	1	491	0	24	0.049	0	28	27	1,611	3	74	0.111	0.046	1	17	1	16	0	0
27-Sep	2	493	0	24	0.049	0	28	33	1,644	5	79	0.152	0.048	0	17	0	16	0	0
28-Sep	1	494	0	24	0.049	0	28	22	1,666	3	82	0.136	0.049	0	17	0	16	0	0
29-Sep	0	494	0	24	0.049	0	28	14	1,680	1	83	0.071	0.049	0	17	1	17	0	0
30-Sep	0	494	0	24	0.049	0	28	13	1,693	1	84	0.077	0.050	2	19	0	17	0	0
01-Oct	0	494	0	24	0.049	0	28	25	1,718	2	86	0.080	0.050	1	20	0	17	0	0
02-Oct	0	494	0	24	0.049	0	28	25	1,743	4	90	0.160	0.052	1	21	0	17	0	0
03-Oct	0	494	0	24	0.049	0	28	14	1,757	1	91	0.071	0.052	0	21	3	20	0	0
04-Oct	0	494	0	24	0.049	0	28	19	1,776	1	92	0.053	0.052	0	21	0	20	0	0
05-Oct	1	495	0	24	0.048	0	28	26	1,802	2	94	0.077	0.052	0	21	4	24	0	0
06-Oct	4	499	0	24	0.048	0	28	20	1,822	0	94	0.000	0.052	1	22	3	27	0	0
07-Oct	0	499	0	24	0.048	0	28	18	1,840	3	97	0.167	0.053	0	22	0	27	0	0
08-Oct	0	499	0	24	0.048	0	28	18	1,858	4	101	0.222	0.054	2	24	0	27	0	0
09-Oct	0	499	0	24	0.048	0	28	15	1,873	1	102	0.067	0.054	0	24	2	29	0	0
10-Oct	0	499	0	24	0.048	0	28	17	1,890	3	105	0.176	0.056	0	24	0	29	0	0
11-Oct	0	499	0	24	0.048	0	28	13	1,903	3	108	0.231	0.057	1	25	0	29	0	0
12-Oct	0	499	0	24	0.048	0	28	14	1,917	1	109	0.071	0.057	1	26	3	32	0	0
13-Oct	0	499	0	24	0.048	0	28	7	1,924	2	111	0.286	0.058	0	26	1	33	0	0
14-Oct	0	499	0	24	0.048	0	28	15	1,939	1	112	0.067	0.058	0	26	2	35	0	0
15-Oct	0	499	0	24	0.048	0	28	13	1,952	0	112	0.000	0.057	0	26	2	37	0	0
16-Oct	0	499	0	24	0.048	0	28	11	1,963	1	113	0.091	0.058	0	26	0	37	0	0
17-Oct	0	499	0	24	0.048	0	28	4	1,967	0	113	0.000	0.057	0	26	2	39	0	0
18-Oct	0	499	0	24	0.048	0	28	6	1,973	0	113	0.000	0.057	0	26	1	40	0	0
19-Oct	0	499	0	24	0.048	0	28	8	1,981	1	114	0.125	0.058	0	26	1	41	0	0
20-Oct	0	499	0	24	0.048	0	28	2	1,983	0	114	0.000	0.057	0	26	1	42	0	0
21-Oct	0	499	0	24	0.048	0	28	5	1,988	0	114	0.000	0.057	0	26	2	44	0	0
22-Oct	0	499	0	24	0.048	0	28	3	1,991	0	114	0.000	0.057	0	26	2	46	0	0
Total	498		24			28		1991		114		0.057		26		46		0	

Table D-3. The data used to derive the in-season sockeye salmon escapment estimates for the Nass River, 1998. These are preliminary data as presented during the season; refer to Appendix B for complete catch and tag totals.

	Fishwheel Catch				Fishwheel Tags					Grease Harbour (FW3&4)						Estimated escapement	
Date	Daily FW1	Daily FW2	Total	Cum. catch	Daily FW1	Daily FW2	Total	Cum. tagged	Prop. tagged	Catch (incl. rcps)	Cum. catch	Raw Recaps	Cum. recaps	Adj. Recaps	Exp. Factor	Mark-Recap.	Expansion factor (fw1&2; 94-97)
12-Jun	4	8	12	12	1	7	8	8	67%							360	299
13-Jun	1	23	24	36	1	21	22	30	92%							1,080	896
14-Jun	0	17	17	53	0	14	14	44	82%							1,590	1,320
15-Jun	7	22	29	82	5	20	25	69	86%							2,460	2,042
16-Jun	5	32	37	119	4	24	28	97	76%	4	4	0	0			3,570	2,963
17-Jun	8	71	79	198	5	45	50	147	63%	21	25	0	0			5,940	4,930
18-Jun	17	92	109	307	8	43	51	198	47%	29	54	0	0	0		9,210	7,644
19-Jun	12	66	78	385	8	41	49	247	63%	84	138	0	0	0		11,550	9,587
20-Jun	20	113	133	518	13	54	67	314	50%	168	306	0	0	0		15,540	12,898
21-Jun	15	134	149	667	10	68	78	392	52%	179	485	2	2	5		20,010	16,608
22-Jun	27	129	156	823	11	66	77	469	49%	170	655	2	4	5		24,690	20,493
23-Jun	35	144	179	1002	25	62	87	556	49%	90	745	3	7	8	19.4	28,206	24,950
24-Jun	20	89	109	1111	5	51	56	612	51%	126	871	0	7	0	23.2	29,983	27,664
25-Jun	12	84	96	1207	9	49	58	670	60%	127	998	0	7	0	33.9	31,386	30,054
26-Jun	8	54	62	1269	6	26	32	702	52%	176	1174	3	10	7	27.5	32,377	31,598
27-Jun	17	88	105	1374	16	83	99	801	94%	156	1330	6	16	12	20.4	34,625	33,567
28-Jun	5	45	50	1424	5	22	27	828	54%	148	1478	7	23	12	19.6	36,012	34,197
29-Jun	22	62	84	1508	22	34	56	884	67%	96	1574	3	26	5	16.3	38,402	35,255
30-Jun	8	93	101	1609	8	64	72	956	71%	104	1678	2	28	3	14.6	40,808	36,528
01-Jul	17	104	121	1730	12	76	88	1044	73%	129	1807	1	29	1	16.0	42,691	38,052
02-Jul	25	68	93	1823	19	62	81	1125	87%	140	1947	2	31	3	21.4	43,932	39,224
03-Jul	12	85	97	1920	11	82	93	1218	96%	107	2054	3	34	5	27.8	45,096	40,446
04-Jul	10	81	91	2011	9	75	84	1302	92%	57	2111	2	36	3	28.5	46,050	41,593
05-Jul	17	92	109	2120	16	80	96	1398	88%	65	2176	3	39	4	23.8	47,218	42,966
06-Jul	16	107	123	2243	16	89	105	1503	85%	54	2230	4	43	6	15.6	48,655	44,516
07-Jul	23	179	202	2445	12	101	113	1616	56%	183	2413	7	50	9	13.3	51,008	47,061
08-Jul	35	155	190	2635	33	57	90	1706	47%	187	2600	11	61	14	12.0	53,653	49,455
09-Jul	23	59	82	2717	22	49	71	1777	87%	204	2804	14	75	20	10.5	55,273	50,489
10-Jul	22	51	73	2790	21	50	71	1848	97%	169	2973	7	82	11	10.7	56,990	51,408
11-Jul	27	51	78	2868	22	50	72	1920	92%	140	3113	5	87	7	11.7	59,261	52,391
12-Jul	36	55	91	2959	29	50	79	1999	87%	127	3240	4	91	5	11.7	62,238	53,538
13-Jul	36	36	72	3031	31	35	66	2065	92%	159	3399	2	93	3	13.9	64,393	54,445
14-Jul	20	39	59	3090	15	37	52	2117	88%	165	3564	4	97	5	19.7	66,594	55,188
15-Jul	34	24	58	3148	33	24	57	2174	98%	189	3753	7	104	7	23.5	69,321	56,047
16-Jul	32	37	69	3217	32	32	64	2238	93%	135	3888	2	106	2	29.1	72,527	57,220

Table D-3. The data used to derive the in-season sockeye salmon escapment estimates for the Nass River, 1998. These are preliminary data as presented during the season; refer to Appendix B for complete catch and tag totals.

	Fishwheel Catch				Fishwheel Tags					Grease Harbour (FW3&4)						Estimated escapement	
Date	Daily FW1	Daily FW2	Total	Cum. catch	Daily FW1	Daily FW2	Total	Cum. tagged	Prop. tagged	Catch (incl. rcps)	Cum. catch	Raw Recaps	Cum. recaps	Adj. Recaps	Exp. Factor	Mark-Recap.	Expansion factor (fw1&2; 94-97)
17-Jul	29	38	67	3284	29	36	65	2303	97%	161	4049	4	110	4	32.7	76,337	58,359
18-Jul	35	37	72	3356	33	34	67	2370	93%	222	4271	6	116	6	29.9	81,586	59,583
19-Jul	48	34	82	3438	46	27	73	2443	89%	167	4438	0	116	0	37.3	86,080	60,977
20-Jul	52	21	73	3511	44	19	63	2506	86%	206	4644	3	119	3	47.0	90,647	62,218
21-Jul	72	26	98	3609	64	22	86	2592	88%	211	4855	3	122	3	46.5	98,414	63,884
22-Jul	59	26	85	3694	50	21	71	2663	84%	263	5118	2	124	2	56.9	105,556	65,329
23-Jul	54	27	81	3775	48	24	72	2735	89%	291	5409	3	127	4	72.9	112,808	66,706
24-Jul	32	44	76	3851	26	39	65	2800	86%	223	5632	4	131	5	54.8	119,721	67,998
25-Jul	23	38	61	3912	19	35	54	2854	89%	135	5767	0	131	0	62.6	125,712	69,035
26-Jul	18	26	44	3956	14	23	37	2891	84%	398	6165	2	133	2	79.3	129,381	69,783
27-Jul	10	34	44	4000	8	30	38	2929	86%	207	6372	1	134	1	84.0	132,406	70,531
28-Jul	12	71	83	4083	7	66	73	3002	88%	191	6563	1	135	1	89.5	137,001	71,942
29-Jul	19	82	101	4184	14	76	90	3092	89%	204	6767	3	138	3	91.0	142,135	73,659
30-Jul	9	66	75	4259	8	61	69	3161	92%	239	7006	3	141	3	98.2	145,077	74,934
31-Jul	8	81	89	4348	7	71	78	3239	88%	233	7239	2	143	3	83.4	148,928	76,763
01-Aug	10	44	54	4402	8	38	46	3285	85%	259	7498	3	146	4	68.7	151,419	78,064
02-Aug	6	19	25	4427	0	0	0	3285	0%	276	7774	4	150	5	55.4	152,775	78,667
03-Aug	23	4	27	4454	8	4	12	3297	44%	187	7961	3	153	4	50.8	154,467	79,317
04-Aug	28	27	55	4509	0	0	0	3297	0%	251	8212	9	162	9	39.2	157,761	80,643
05-Aug	16	20	36	4545	14	20	34	3331	94%	263	8475	1	163	1	43.3	160,210	81,511
06-Aug	33	21	54	4599	26	15	41	3372	76%	116	8591	0	163	0	46.1	163,077	82,812
07-Aug	33	7	40	4639	25	5	30	3402	75%	169	8760	1	164	1	54.2	165,158	83,776
08-Aug	17	12	29	4668	16	10	26	3428	90%	146	8906	1	165	1	62.7	167,047	84,475
09-Aug	11	15	26	4694	10	12	22	3450	85%	131	9037	1	166	2	59.9	168,923	85,101
10-Aug	7	18	25	4719	6	17	23	3473	92%	48	9085	1	167	2	68.0	170,836	85,704
11-Aug	4	38	42	4761	2	36	38	3511	90%	87	9172	1	168	2	53.1	174,329	86,716
12-Aug	2	35	37	4798	2	34	36	3547	97%	181	9353	1	169	1	52.0	177,809	87,608
13-Aug	6	27	33	4831	4	26	30	3577	91%	178	9531	0	169	0	65.2	180,006	88,403
14-Aug	7	26	33	4864	4	21	25	3602	76%	269	9800	2	171	2	72.1	181,948	89,198
15-Aug	4	17	21	4885	2	14	16	3618	76%	54	9854	0	171	0	76.5	183,154	89,658
16-Aug	10	21	31	4916	7	17	24	3642	77%	96	9950	1	172	1	83.2	185,117	90,269
17-Aug	13	20	33	4949	7	18	25	3667	76%	140	10090	2	174	2	94.0	187,326	90,919
18-Aug	11	24	35	4984	10	20	30	3697	86%	165	10255	3	177	3	66.6	189,537	91,609
19-Aug	10	17	27	5011	8	16	24	3721	89%	250	10505	3	180	3	58.8	191,407	92,141
20-Aug	17	15	32	5043	16	11	27	3748	84%	121	10626	1	181	1	57.4	193,166	92,771

Table D-3. The data used to derive the in-season sockeye salmon escapment estimates for the Nass River, 1998. These are preliminary data as presented during the season; refer to Appendix B for complete catch and tag totals.

	Fishwheel Catch				Fishwheel Tags					Grease Harbour (FW3&4)						Estimated escapement	
Date	Daily FW1	Daily FW2	Total	Cum. catch	Daily FW1	Daily FW2	Total	Cum. tagged	Prop. tagged	Catch (incl. rcps)	Cum. catch	Raw Recaps	Cum. recaps	Adj. Recaps	Exp. Factor	Mark-Recap.	Expansion factor (fw1&2; 94-97)
21-Aug	29	11	40	5083	23	9	32	3780	80%	179	10805	1	182	1	63.3	194,954	93,559
22-Aug	21	7	28	5111	18	7	25	3805	89%	113	10918	1	183	1	67.0	196,248	94,111
23-Aug	14	3	17	5128	12	3	15	3820	88%	64	10982	1	184	1	63.2	197,138	94,445
24-Aug	17	1	18	5146	13	1	14	3834	78%	94	11076	1	185	1	69.3	198,171	94,800
25-Aug	11	0	11	5157	11	0	11	3845	100%	50	11126	2	187	2	55.0	198,809	95,017
26-Aug	14	5	19	5176	13	3	16	3861	84%	72	11198	1	188	1	44.7	199,994	95,391
27-Aug	10	3	13	5189	7	2	9	3870	69%	50	11248	0	188	0	46.2	200,753	95,647
28-Aug	10	7	17	5206	9	6	15	3885	88%	70	11318	1	189	1	52.4	201,290	95,982
29-Aug	12	7	19	5225	10	5	15	3900	79%	37	11355	0	189	0	57.4	201,788	96,356
30-Aug	1	4	5	5230	1	4	5	3905	100%	3	11358	0	189	0	58.0	201,934	96,455
31-Aug	2	10	12	5242	1	9	10	3915	83%	21	11379	0	189	0	62.3	202,324	96,691
01-Sep	7	2	9	5251	7	2	9	3924	100%	93	11472	2	191	2	58.4	202,604	96,869
02-Sep	5	3	8	5259	2	3	5	3929	63%	53	11525	3	194	3	31.6	202,908	97,026
03-Sep	3	0	3	5262	2	0	2	3931	67%	36	11561	1	195	1	26.2	203,042	97,085
04-Sep	5	5	10	5272	4	4	8	3939	80%	62	11623	1	196	1	29.2	203,539	97,282
05-Sep	5	3	8	5280	3	3	6	3945	75%	51	11674	0	196	0	32.5	203,770	97,440
06-Sep	6	1	7	5287	4	0	4	3949	57%	30	11704	1	197	1	31.1	204,030	97,578
07-Sep	5	1	6	5293	5	1	6	3955	100%	20	11724	1	198	1	37.9	204,125	97,696
08-Sep	5	3	8	5301	4	3	7	3962	88%	35	11759	0	198	0	44.6	204,219	97,854
09-Sep	21	3	24	5325	21	3	24	3986	100%	27	11786	0	198	0	49.8	204,484	98,326
10-Sep	7	1	8	5333	6	1	7	3993	88%	23	11809	1	199	2	28.9	204,589	98,484
11-Sep	11	0	11	5344	10	0	10	4003	91%	24	11833	0	199	0	37.0	204,722	98,701
12-Sep	6	2	8	5352	5	2	7	4010	88%	24	11857	3	202	5	15.9	204,823	98,858
13-Sep	6	2	8	5360	6	2	8	4018	100%	18	11875	1	203	1	11.7	204,922	99,016
14-Sep	6	2	8	5368	4	2	6	4024	75%	20	11895	0	203	0	11.0	205,022	99,173
15-Sep	6	1	7	5375	4	0	4	4028	57%	18	11913	0	203	0	13.1	205,109	99,311
16-Sep	0	0	0	5375	0	0	0	4028	0%	16	11929	0	203	0	12.1	205,109	99,311
17-Sep	2	0	2	5377	2	0	2	4030	100%	4	11933	0	203	0	12.6	205,134	99,351
18-Sep	0	0	0	5377	0	0	0	4030	0%	3	11936	0	203	0	12.4	205,134	99,351
19-Sep	0	0	0	5377	0	0	0	4030	0%	10	11946	0	203	0	12.5	205,134	99,351
20-Sep	0	0	0	5377	0	0	0	4030	0%	4	11950	0	203	0	12.4	205,134	99,351
21-Sep	0	0	0	5377	0	0	0	4030	0%	11	11961	0	203	0	12.5	205,134	99,351
22-Sep	0	0	0	5377	0	0	0	4030	0%	4	11965	0	203	0	12.4	205,134	99,351
23-Sep	0	0	0	5377	0	0	0	4030	0%	5	11970	0	203	0	12.4	205,134	99,351
24-Sep	0	0	0	5377	0	0	0	4030	0%	0	11970	0	203	0	12.4	205,134	99,351

Table D-3. The data used to derive the in-season sockeye salmon escapment estimates for the Nass River, 1998. These are preliminary data as presented during the season; refer to Appendix B for complete catch and tag totals.

	Fishwheel Catch				Fishwheel Tags					Grease Harbour (FW3&4)						Estimated escapement	
Date	Daily FW1	Daily FW2	Total	Cum. catch	Daily FW1	Daily FW2	Total	Cum. tagged	Prop. tagged	Catch (incl. rcps)	Cum. catch	Raw Recaps	Cum. recaps	Adj. Recaps	Exp. Factor	Mark-Recap.	Expansion factor (fw1&2; 94-97)
25-Sep	0	0	0	5377	0	0	0	4030	0%	3	11973	0	203	0	12.4	205,134	99,351
26-Sep	0	0	0	5377	0	0	0	4030	0%	4	11977	0	203	0	12.4	205,134	99,351
27-Sep	0	0	0	5377	0	0	0	4030	0%	3	11980	0	203	0	12.4	205,134	99,351
28-Sep	0	0	0	5377	0	0	0	4030	0%	7	11987	0	203	0	12.4	205,134	99,351
29-Sep	0	0	0	5377	0	0	0	4030	0%	4	11991	0	203	0	12.4	205,134	99,351
30-Sep	0	0	0	5377	0	0	0	4030	0%	8	11999	0	203	0	12.4	205,134	99,351
01-Oct	0	0	0	5377	0	0	0	4030	0%	4	12003	0	203	0	12.4	205,134	99,351
02-Oct	0	0	0	5377	0	0	0	4030	0%	0	12003	0	203	0	12.4	205,134	99,351
03-Oct	0	0	0	5377	0	0	0	4030	0%	0	12003	0	203	0	12.4	205,134	99,351
04-Oct	0	0	0	5377	0	0	0	4030	0%	0	12003	0	203	0	12.4	205,134	99,351
05-Oct	0	0	0	5377	0	0	0	4030	0%	1	12004	0	203	0	12.4	205,134	99,351
06-Oct	0	0	0	5377	0	0	0	4030	0%	1	12005	1	204	0	12.4	205,134	99,351
07-Oct	0	0	0	5377	0	0	0	4030	0%	0	12005	0	204	0	12.4	205,134	99,351
08-Oct	0	0	0	5377	0	0	0	4030	0%	0	12005	0	204	0	12.4	205,134	99,351
09-Oct	0	0	0	5377	0	0	0	4030	0%	3	12008	0	204	0	12.4	205,134	99,351
10-Oct	0	0	0	5377	0	0	0	4030	0%	0	12008	0	204	0	12.4	205,134	99,351
11-Oct	0	0	0	5377	0	0	0	4030	0%	2	12010	0	204	0	12.4	205,134	99,351
12-Oct	0	0	0	5377	0	0	0	4030	0%	1	12011	0	204	0	12.4	205,134	99,351
13-Oct	0	0	0	5377	0	0	0	4030	0%	1	12012	0	204	0	12.4	205,134	99,351
Total	1623	3754	5377		1294	2736	4030			12012		204				205,134	99,351

Note 1: Lower wheels started on 12 June (FW2 at 10:30 hr and FW1 at 12:20 hr) and Upper wheels started on 16 June (FW3 at 20:00 hr) and 18 June (FW4 at 20:00).

Note 2: FW3 damaged by log, not fishing from 15 August to 17 August and 30 August.

Note 3: Due to extreme low water, FW1, FW2, FW3, and FW4 stopped fishing on 17 Sep, 20 Sep, 5 Oct and 13 Oct, respectively.

Pre-season	**24.9**	**June**
expansion	18.75	27 June
factors	**12.6**	**28 June-14 July**
	14.8	15 July
	17	**16-30 July**
	20.6	31 July
(1-day transition	**24.1**	**1-14 Aug**
interpolation	21.9	15 August
between periods)	**19.7**	**16-31 Aug**

APPENDIX E

Age and length data from fish captured in the Nass River fishwheels, 1998

Table E-1. Numbers of fish by age and length for chinook salmon sampled at the Nass River fishwheels, 1998.

Nose-fork	Numbers of fish by age class						Total	Fish sampled but not aged [a]					Total	Percent
length (cm)	42	51	52	53	62	63	aged	1M	2M	3M	4M	RG	not aged	not aged
57	1			1			2						0	0
58	1						1						0	0
59	1						1		2				2	67
60	2						2						0	0
61	3						3						0	0
62	1						1		3				3	75
63	1						1		1				1	50
64	1						1						0	0
65	1						1		1				1	50
66	5						5		1				1	17
67	10		1				11						0	0
68	7						7		1			1	2	22
69	6			1			7		2				2	22
70	3						3		2				2	40
71	8						8						0	0
72	1						1		1				1	50
73	2		2				4		2				2	33
74	5		2				7						0	0
75	1		1				2		1	1			2	50
76			3				3						0	0
77	1						1						0	0
78	3		1				4			1			1	20
79			6				6		1				1	14
80			7				7					1	1	13
81			6				6						0	0
82	1		9				10					1	1	9
83			8		2		10			1			1	9
84			8				8			1			1	11
85			10				10			2		1	3	23
86	1		13				14			3			3	18
87			22				22			4			4	15
88		1	20		1		22			1			1	4
89	1		19		4		24			4			4	14
90			19				19			2	1		3	14
91			16		3		19			7		1	8	30
92			24		1		25			1		1	2	7
93			18		2		20			2			2	9
94			8		1	1	10			4			4	29
95			11				11			5	2		7	39
96			9		3		12			3			3	20
97			6		5		11			3			3	21
98			6		2		8						0	0
99			7		2	1	10			2	1		3	23

Table E-1. Numbers of fish by age and length for chinook salmon sampled at the Nass River fishwheels, 1998.

Nose-fork	Numbers of fish by age class						Total	Fish sampled but not aged [a]					Total	Percent
length (cm)	42	51	52	53	62	63	aged	1M	2M	3M	4M	RG	not aged	not aged
100			8				8						0	0
101			2		3		5			1	1		2	29
102			1		1		2				1		1	33
103			3				3						0	0
104			3				3						0	0
105			1		3		4						0	0
108					2		2						0	0
111					1		1						0	0
Totals	67	1	280	2	36	2	388	0	18	48	6	6	78	17
Percent	17.3	0.3	72.2	0.5	9.3	0.5								

[a] Age error codes: M refers to marine annuli, the numbers refer to the number of marine annuli and RG is regenerated scale.

Table E-2. Numbers of fish by age and length for sockeye salmon sampled at the Nass River fishwheels, 1998.

Nose-fork	Numbers of fish by age class										Number of fish sampled but could not be aged[a]							Percent
length (cm)	31	41	42	43	52	53	62	63	64	Total	1M	2M	3M	RG	S2	S3	Total	not aged
45			2	1						3							0	0
46	1		1	1						3							0	0
48	1		2	4						7							0	0
49			3					1		4		1					1	20
50	3		2			2				7				1			1	13
51	3		10	1		4				18							0	0
52	2		9		3	4				18		1		1		1	3	14
53	2	2	11		2	20				37		1		1			2	5
54	4	1	22		5	17		1		50		1					1	2
55	4	1	25		10	22		1		63		2		4			6	9
56	3	3	28		11	33		1		79		4		2			6	7
57	5	2	28		20	53		3		111		4	2	7			13	10
58	1	2	34		21	54		3		115		5	5	5			15	12
59	2	6	24		31	77		2		142		4		6			10	7
60	1	1	24		48	69		6		149		3	3				6	4
61		5	17		46	67	1	13		149		2	3	2			7	4
62		3	21		58	55		14		151		6	4	2			12	7
63		1	13		62	52		12		140		2	3	2			7	5
64			9		43	41		11		104		2	7	5			14	12
65	1		8		47	35		11	1	103		1	3	1			5	5
66	1	1	4		36	23		12		77		1	2				3	4
67			3		37	13		10		63			4	3			7	10
68			5		26	11		4		46			2	1			3	6
69			2		24	8		9		43			1	2			3	7
70			2		13	7		8		30		1		1			2	6
71			2		11	2		5		20		2	1	1			4	17
72					7			3		10							0	0
73						2		2		4							0	0
74						2		1		3							0	0
75					1					1							0	0
77								1		1							0	0
79								1		1							0	0
Totals	34	28	311	7	562	673	1	135	1	1752	0	43	40	47	0	1	131	7

[a] Age error codes: 1M, 2M, 3M, refers to 1, 2 or 3 marine annuli; RG, regenerated; S2, sub-two (1 fresh water annulus); S3, sub-three (2 fresh water annuli).

Table E-3. Summary of weekly age composition of sockeye salmon sampled at the Nass River fishwheels, 1998.

Week	Stat.	Portion of	Numbers of fish by age class										Proportions by week								
ending	week	total run	31	41	42	43	52	53	62	63	64	Totals	31	41	42	43	52	53	62	63	64
13-Jun	24	0.0067	0	0	2	0	4	1	0	0	0	7	0.00	0.00	0.29	0.00	0.57	0.14	0.00	0.00	0.00
20-Jun	25	0.0757	14	12	8	0	92	14	0	9	0	149	0.09	0.08	0.05	0.00	0.62	0.09	0.00	0.06	0.00
27-Jun	26	0.0886	14	14	44	1	65	36	0	9	0	183	0.08	0.08	0.24	0.01	0.36	0.20	0.00	0.05	0.00
04-Jul	27	0.0600	3	1	50	0	52	47	1	6	0	160	0.02	0.01	0.31	0.00	0.33	0.29	0.01	0.04	0.00
11-Jul	28	0.0949	1	0	54	1	80	54	0	7	0	197	0.01	0.00	0.27	0.01	0.41	0.27	0.00	0.04	0.00
18-Jul	29	0.0925	2	0	41	0	60	46	0	12	0	161	0.01	0.00	0.25	0.00	0.37	0.29	0.00	0.07	0.00
25-Jul	30	0.1959	0	0	25	0	71	52	0	13	0	161	0.00	0.00	0.16	0.00	0.44	0.32	0.00	0.08	0.00
01-Aug	31	0.1820	0	0	31	1	58	60	0	11	0	161	0.00	0.00	0.19	0.01	0.36	0.37	0.00	0.07	0.00
08-Aug	32	0.0828	0	0	10	1	30	51	0	11	0	103	0.00	0.00	0.10	0.01	0.29	0.50	0.00	0.11	0.00
15-Aug	33	0.0558	0	0	15	1	19	86	0	21	0	142	0.00	0.00	0.11	0.01	0.13	0.61	0.00	0.15	0.00
22-Aug	34	0.0380	0	0	11	1	18	94	0	15	0	139	0.00	0.00	0.08	0.01	0.13	0.68	0.00	0.11	0.00
29-Aug	35	0.0149	0	1	10	0	7	52	0	12	1	83	0.00	0.01	0.12	0.00	0.08	0.63	0.00	0.14	0.01
05-Sep	36	0.0059	0	0	6	1	3	25	0	5	0	40	0.00	0.00	0.15	0.03	0.08	0.63	0.00	0.13	0.00
12-Sep	37	0.0047	0	0	3	0	5	46	0	4	0	58	0.00	0.00	0.05	0.00	0.09	0.79	0.00	0.07	0.00
19-Sep	38	0.0016	0	0	3	0	1	11	0	1	0	16	0.00	0.00	0.19	0.00	0.06	0.69	0.00	0.06	0.00
Totals		1.0000	34	28	313	7	565	675	1	136	1	1760	0.02	0.02	0.18	0.00	0.32	0.38	0.00	0.08	0.00
												Proportions weighted by portion of run:	0.017	0.013	0.181	0.004	0.365	0.345	0.000	0.074	0.000

Table E-4. Summary of the numbers and mean lengths (nose-fork, cm) of successfully aged sockeye salmon from the Nass River fishwheel catch, 1998.

	June			July			August			September			Total		
Age class	N	Mean	SD[a]	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD
31	30	55.2	4.2	4	51.5	2.9							34	54.8	4.2
41	27	58.9	3.1				1	56.0					28	58.8	3.1
42	78	58.5	3.9	174	57.7	4.0	50	58.9	6.1	11	59.3	7.2	313	58.1	4.5
43	1	48.0		1	51.0		5	47.0	1.4				7	47.7	1.9
52	181	64.1	4.0	296	62.7	4.1	81	62.2	3.8	7	61.6	4.2	565	63.0	4.1
53	73	58.9	3.0	225	59.5	3.6	304	61.4	4.3	73	60.8	4.0	675	60.4	4.0
62	1	61.0											1	61.0	
63	19	63.3	4.0	47	64.1	4.2	60	65.9	4.8	10	63.0	4.5	136	64.7	4.6
64	0						1	65.0					1	65.0	
Totals	410	61.0	4.9	747	60.6	4.6	502	61.7	5.0	101	60.9	4.5	1760	61.0	4.8

[a] Standard deviation

Table E-5. Numbers of fish by age and length for coho salmon sampled at the Nass River fishwheels, 1998.

Nose-fork	Numbers of fish by age class			Total	Fish sampled but not aged [a]		Total	Percent
length (cm)	32	43	54	aged	1M	RG	not aged	not aged
32		1		1			0	0
33				0	1		1	100
35				0	1		1	100
40	1			1			0	0
41		1		1	1		1	50
42	4	1		5	2		2	29
43				0	2		2	100
44	3	1		4	3	2	5	56
45	6	4		10	5	2	7	41
46	5	3		8	3		3	27
47	5	3		8	3	3	6	43
48	4	5		9	7	1	8	47
49	8	5		13	8		8	38
50	5	4		9	7	1	8	47
51	5	11		16	10		10	38
52	10	11		21	11		11	34
53	7	7		14	12	1	13	48
54	3	6		9	11	2	13	59
55	6	7		13	4	1	5	28
56	8	11		19	8	1	9	32
57	6	5		11	5	2	7	39
58	5	8		13	6	3	9	41
59	7	12		19	8	1	9	32
60	11	9		20	5		5	20
61	12	10		22	11	1	12	35
62	8	14		22	9	1	10	31
63	14	19		33	10	2	12	27
64	21	28		49	22	1	23	32
65	18	33		51	17	4	21	29
66	17	40		57	39	1	40	41
67	33	54		87	35	5	40	31
68	39	64		103	45	2	47	31
69	31	69		100	42	3	45	31
70	19	47		66	41	2	43	39
71	31	63	1	95	35		35	27
72	29	47		76	23	2	25	25
73	20	49		69	17	3	20	22
74	8	24		32	23	2	25	44
75	6	16	1	23	18	2	20	47
76	6	5		11	10	1	11	50
77	4	7		11	2	1	3	21
78	3	3		6	4		4	40
79	3	1		4	4		4	50
80	2	2		4			0	0
81				0	1		1	100
83				0	1		1	100
84		1		1			0	0
86	1			1			0	0
92		1		1			0	0
Total	434	712	2	1148	532	53	585	34
Percent	37.8	62.0	0.2					

[a] Age error codes: M refers to marine annuli, the numbers refer to the number of marine annuli and RG is regenerated scale.